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Industry Uniting to Effect Stability

Highest production in 1930, week ending Feb. 22, average daily output 2,609,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Effort on Part of All Needed at This Time to Hold Advantages Until Spring Brings Anticipated Improvement

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

The petroleum industry is going through a period which many hope will turn out to be the darkest hour before the dawn. Encouraging factors are the interest everyone is taking in the situation and activity upon the part of individuals and associations to stabilize the business and bring about a balance between supply and demand of both crude oil and refined products.

Developments during the remainder of this month will determine to a large extent what may be expected until the spring demand brings anticipated improvement. Of especial importance to the industry as a whole is the meeting to be held on Thursday of this week in St. Louis of directors of the American Petroleum Institute. President Beaty is greatly concerned over the outlook and seems to feel a condition approaching chaos might be experienced during January. It is safe to assume every phase of the situation will be discussed at St. Louis.

The belief is growing a general conference of all interested parties to discuss the situation is desirable. The president of a large independent company, high in the councils of the American Petroleum Institute, writes The Oil and Gas Journal: "United effort, with typical representation from each branch of the industry to formulate a general policy, is excellent. If the forthcoming meeting of the Board of Directors of the American Petroleum Institute has a suggestion that can be used without prejudice, it should be the basis for a general call a little later."

Every effort should be made at this time to curtail runs to stills and production of crude oil. If the situation can be held this winter without change in the price structure, every indication points to substantial improvement in the general situation next spring.

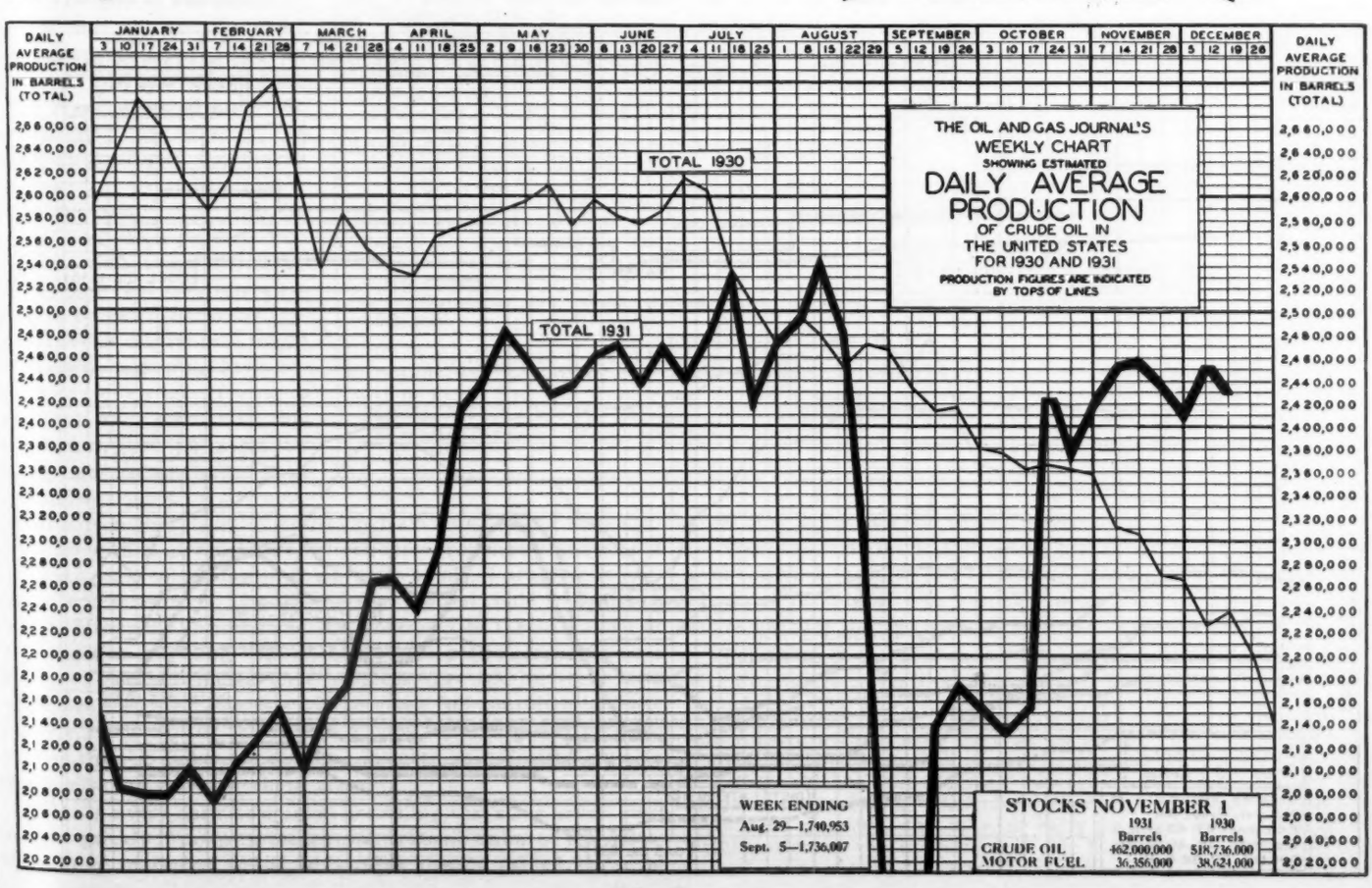
The administration at Washington is sympathetic towards efforts being made by the oil industry to stabilize conditions. If there is a sufficient demand upon the part of the industry for a general conference, it is believed the Federal administration would be willing to sponsor such a conference. It is up to the industry and associations within the industry to make their desires known to Washington.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended December 12 and a comparison with the previous week follows:

	Dec. 12	Dec. 5
Oklahoma—		
Oklahoma City	191,210	196,785
Seminole-St. Louis	129,395	141,620
Remainder of State	217,710	216,215
Total Oklahoma	538,315	554,620
East Texas—		
Kilgore	124,860	133,465
Lathrop	130,712	133,448
Joiner	134,613	135,320
Total East Texas	390,185	402,233
West Texas	197,627	200,174
North Central Texas	81,328	82,096
Texas Panhandle	53,041	53,537
East Central Texas	56,735	56,785
Gulf Coast—Texas	121,055	120,725
Southwest Texas	62,904	62,643
Total State of Texas	962,875	978,193
North Louisiana	27,575	28,690
Arkansas	37,425	37,450
Kansas	104,930	104,830
Gulf Coast—Louisiana	35,420	34,212
Eastern	124,000	127,000
Rocky Mountain area	91,153	90,206
California—		
Santa Fe Springs	63,000	61,500
Long Beach	74,500	74,250
Playa Del Rey	22,500	22,750
Elwood	22,000	22,750
Kettleman Hills	59,500	58,500
Remainder of State	266,500	256,250
Total California	508,000	496,000
Total United States	2,429,693	2,451,201

→ **Decrease 21,508 Bbls. Daily** ←



Kerosene Prices in Oklahoma Advance

Present Quotations Approximately Same as Gasolines Which Continue Decline. Stocks Less Than Last Year

By C. O. Willson

Kerosene, which has been one of the "weak sisters" of the Mid-Continent refinery market for many months, came into its own during the past week and prices advanced in the face of a generally weak market in practically all other products. Substantial buying by several major refining and export organizations with a steady jobber demand was responsible for the strength in the product which has had a slow market position for so long that upturn came as a distinct surprise to many in the trade.

In the Mid-Continent a few major companies have been consistent buyers for several weeks. These purchasers include Gulf, Texas, Sinclair, Humble and Cities Service, the latter buying for export and coastwise movement. It is estimated that over the past three weeks these companies have purchased over 10,000 000 gallons of kerosene for delivery before the end of December. The bulk of this business was placed with inland Texas refiners, particularly the North Texas group, with North Louisiana, Oklahoma and Kansas refiners getting the remainder of the orders. Several of the skimming plants in the Mid-Continent and many of the other smaller operators manufacture quality grades of kerosene due to the characteristics of the crude with which they operate. The major companies mentioned have been buying this kerosene to take care of their local requirements and also for shipment to the coast, where it is used in coastwise and export shipment.

Other Products Weak

So far as the refiners are concerned, the strength of kerosene furnished the only ray of light in an otherwise discouraging market. The slump in the refinery gasoline market was not stopped and the week brought another one-half cent reduction in open market quotations on all grades. Fuel oils were not strong and published prices on the higher gravities in this issue are from 2½ to 5 cents a barrel less than last week. Gas oils and furnace oils were firmer than the heavier fuels, but bargain offers made their appearance on the market several times during the week. The bulk of this material, however, was coming from competitive refining groups and Oklahoma prices were being maintained. Gloomy reports from the East continue to cast a shadow over the Mid-Continent market for all grades of lubricants and petroleum wax.

Kerosene Situation

In connection with the strength shown in the Mid-Continent market during the week the statistical situation of that product over the past year is of interest. The Bureau of Mines report covering the first 10 months of 1931 shows that for the entire United States, the export demand was 25.5 per cent less than the same period last year and the domestic demand 14 per cent less. Until October, there was a large monthly decline in both the export and domestic demands when compared with the same month last year. In October the domestic demand was 17 per cent greater than the same month last year and the decline in exports was only 8.7 per cent which compares with a 21.7 per cent decline in September and the 25.5 per cent figure for the first 10 months.

Despite this large decline in demand refiners have been able to improve their stock situation and on November 1 kerosene stocks at refineries in United States were 22.4 per cent less than on the same date in 1930. The stocks of 5,924,000 bbls. at the start of November were at the low point of the past several years. The following table shows the stock situation by refining areas (thousands of barrels):

	Nov. 1 — 1931	1930
East Coast	1,062	1,662
Appalachian	354	173
Indiana, Illinois, Kentucky, etc.	637	648
Oklahoma, Kansas, Missouri	612	657
Texas	998	1,566
Louisiana and Arkansas	819	916
Rocky Mountain	333	246
California	1,609	1,764
United States	5,924	7,632
Texas Gulf	836	1,469
Louisiana Gulf	302	895

This table shows that the bulk of the

(Continued on Page 99)

REFINED MARKET BAROMETER

Although there were exceptions to the rule refinery gasoline prices including natural gasolines continue to decline. The decline was rapid at Mid-Continent and Middle West points where quotations are near the low point of the year. California furnished the principal exception with an advance in grades for domestic shipment. The refinery market was disturbed by scattered reductions in gasoline tank wagon and service station prices reflecting the wider spreads between tank car and retail prices. Kerosene was reported strong in practically all refining groups and small price advances materialized at several points. Other burning oils and fuels were generally steady although the demand for industrial fuels is still not active. Bright stocks and neutral oils are generally weak and prices lower when any changes are made. Prices on several grades of wax were reduced in the East.

Mid-Continent—Refinery gasolines and natural gasolines continue rapid decline and are near low point of year. Strong demand for kerosene and price advances by a large number of refiners. Furnace oil prices steady. Industrial fuels slow. Lessened demand for lubricating oils and wax.

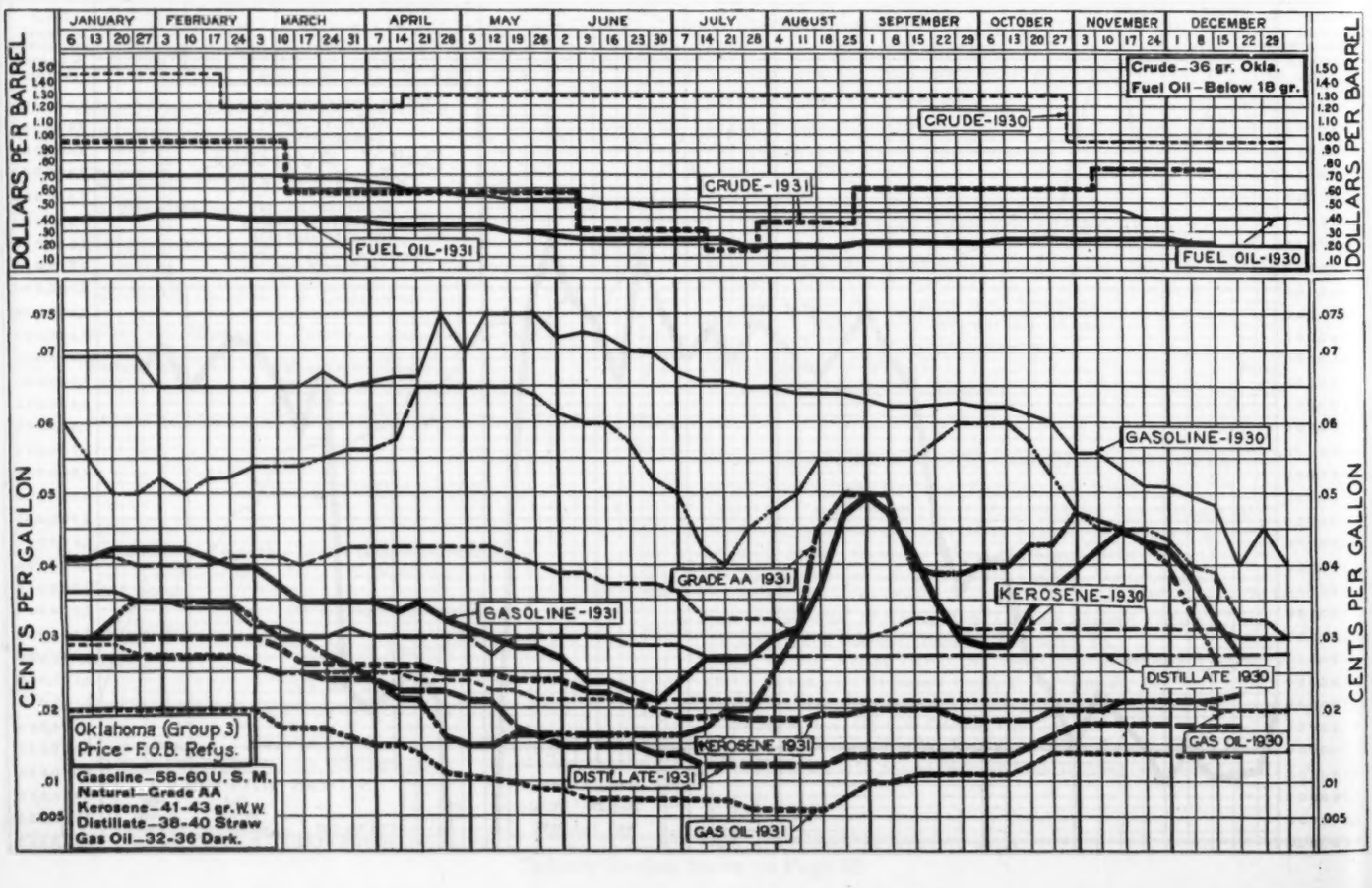
East Coast—Important reductions in gasoline tank wagon and service station prices at several points reflected in unsettled tank car market. Kerosene strong. Fuel oils and Diesel oils steady. Cylinder stocks slow. Prices lower on several grades of paraffin wax.

Chicago—Gasolines weak and prices lower. Kerosene tank car markets strong. Additional strength in fuel oils and gas oils.

Gulf Coast—Buying generally quiet. Weakness apparent in gasolines. Gas oils firm.

Pennsylvania—Kerosene strong and prices higher. Gasolines less active. Prices on several grades of neutral oils and bright stock lower.

California—Gasolines for domestic delivery higher. Export and coastwise prices unchanged. Kerosene firm.



Need for General Meeting Recognized

Associations and Leaders of Oil Industry Support Suggestion for Conference to Insure Stability of Business

By Andrew M. Rowley

Strong indorsement has been given the suggestion advanced by The Oil and Gas Journal in its issue of December 10 that "the time has come when the oil industry and the state and federal governments should get together to take an inventory of the oil business and decide upon such measures as may be deemed necessary to prevent a recurrence of depressed conditions of the past year and to permit this basic industry to aid all other business in the United States to regain a solid and firm footing."

The executive committee of the Texas Oil and Gas Conservation Association, an organization representing all groups and branches of the industry in Texas, at a meeting on Monday adopted a resolution requesting the Board of Directors of the American Petroleum Institute, who will meet in St. Louis Thursday, to ask the federal authorities to call such a meeting. Leaders of the petroleum industry in different sections of the United States have telegraphed Secretary of War Patrick J. Hurley and others in Washington asking that they use their influence to persuade President Hoover to call a meeting of representatives of all organizations and associations connected with the oil business and official delegates of the different oil-producing states and the federal government.

Would Benefit All

The thought in the minds of many oil men who have discussed the suggestion seems to be expressed in a letter received from a man especially well known in the industry. He says: "The more I think of your proposal in the issue of December 10 the more impressed I am with its possibilities. I anticipate you have in mind some action by which every type of interest entitled to be heard either by representative or otherwise as might be thought best, may have opportunity to do so. If such a movement were started so that all groups, that is, consumer through government representatives, independents, royalty owners, American Petroleum Institute, and all others stood somewhat on the same basis of equality, I believe there would be much chance of working out something to the benefit of all. I trust your suggestion will take form. The Oil and Gas Journal could well assume definite leadership in initiating the movement to the advantage of the industry. Anything that will bring all parties together on a feeling of equality under some auspices that inspire them with confidence that their interests will be given full consideration will, I believe, tend to bring the various groups closer together on some program than if the movement were inspired and directed entirely by any separate group working alone."

There is a very definite opinion prevailing that some action must be taken quickly if progress made towards stabilization of the industry is to be continued and if advantages already gained are to be held. Those who are unconcerned about a threatened reduction in crude oil prices can be counted on the fingers of two hands. Leading executives of the industry are anxious to maintain prices at present levels and to do all in their power to prevent a slipping backward. The larger companies do not want to see prices reduced.

But facts must be faced. Too much crude oil is being produced and refiners are manufacturing too much gasoline. Weakness in refined oil prices is due to the fact more gasoline is being offered than the market can absorb. This condition, if allowed to continue, will undo much of the good which has been accomplished and, many feel, will result in a reduction in crude oil prices shortly after the first of the year.

Any step backward at this time would have a bad effect upon the entire industry and upon all efforts to stabilize conditions and permit the business to operate upon a profitable basis.

Some definite action must be taken at this time to prevent a reduction in prices. Individuals and companies who have been passive in the past in all movements calculated to maintain a balance between supply and demand must be brought into line and made to see the necessity of their lending full and active co-operation. This co-operation must be sincere and continuous. It must be shown by actions.

A. P. I. Meeting

Directors of the American Petroleum Institute will discuss the situation in St. Louis on Thursday of this week. This group of leading oil men from throughout the nation can decide what is wrong with the industry and what measures should be taken to correct the situation and prevent a recurrence of the troubles of the past. Their conclusions then should be presented at a meeting of representatives of all organizations and associations within the petroleum industry and official delegates from the different oil producing states and the federal government.

With the facts before them, such a meeting could consider whatever action is taken by the institute directors and devise ways and means of making effective quickly such proposals as may be recommended for the betterment of the industry as a whole.

Following is the resolution adopted unanimously by the Executive Committee of the Texas Oil and Gas Conservation Association:

"Be It Resolved, by this committee that the Board of Directors of the American Petroleum Institute be hereby requested to ask the federal authorities to call a general meeting of the oil industry, together with the proper federal authorities and the officials of the various oil producing states; said meeting to be held during the month of January, the date as early as convenient, to further stabilization of the industry, and for further conservation of the states' entire natural resources."

BEATY ISSUES WARNING TO INDUSTRY

NEW YORK, Dec. 15.—The oil industry was warned in a forceful statement addressed directly to it today by Amos L. Beaty, president of the American Petroleum Institute, that it faces the choice between sanity of operations and utter collapse.

Optimistic and lulling statements at this time are to be deplored, President Beaty said, declaring that crude oil production and refinery runs both are far too high, and the industry "must do some constructive things, or else witness demoralization and loss exceeding anything which has occurred in the recent past." Prompt enactment of a tariff might save the situation in the United States temporarily, he declared, but warned that "a tariff alone cannot save us."

President Beaty's statement follows:

"To the Oil Industry:

"Unless something is done quickly we are headed for more trouble. A tariff promptly enacted might temporarily save the situation in the United States. At some expense to foreign business it might even tide us over until the present high potentials of crude production here are reduced to safer bounds. But a tariff alone cannot save us. We must do some constructive things, or else witness demoralization and loss exceeding anything which has occurred in the recent past.

"Crude production from flowing wells is 20 per cent too high and refinery runs are 20 per cent too high. This is not a wild or extravagant statement; it is fully supported by up-to-date statistics which take into account the decline in consumption now occurring. The industry must take its choice between sanity in operations and utter collapse.

"Optimistic and lulling statements at this time are to be deplored.

(Signed) "AMOS L. BEATY."

A meeting of the Board of Directors of the American Petroleum Institute has been called by Mr. Beaty for Thursday, December 17, at St Louis, Mo. The meeting will be held in the Statler Hotel, convening at 10 a. m. The principal item on the docket is discussion of current conditions in the petroleum industry.

Distant Pump Station Successfully Worked By Remote Control

* * * * * *

By L. G. E. Bignell
Petroleum Engineering Editor

There has been a steady improvement in methods of gathering and transporting crude oil from well to refinery developing since the days of the old steam pump stations, that has led up through the period when internal combustion engines and electric motors were first adopted until now a good many of the operations involved in this work can be done automatically. The latest type of pipe line station equipment is electric driven and controlled from a remote point, and a good example of this type of installation is to be found in the Sand Springs, Okla., plant of the Texas-Empire Pipe Line Co.

This company has a 12-inch main trunk line handling oil from Lima, Okla., in the Seminole Pool, to Chicago, and has along this line a total of 19 stations, some equipped with Diesel engine driven pumps and others with electric motor driven pumps. Both duplex and triplex reciprocating type pumps are used with the Diesel engines and both reciprocating and centrifugal pumps are used with electric motors. All pumps are built to work at a line pressure of about 750 pounds.

In the Sand Springs, Okla., station there are three 800-horsepower motor driven centrifugal pumps together with a sump pump, motor operated gate valve, pressure recording system, and other equipment common to main line pump stations.

This station was erected in November, 1930, and is about 15 miles from Tulsa. On April 1, 1931, the Sand Springs station was equipped with electrical devices so that by the changing of a single switch it can be manually operated by the station operator or operated and controlled under the supervision of the chief dispatcher in Tulsa. By means of the remote control and indicating equipment the dispatcher is able to handle starting and stopping operations and to visualize operating conditions through a system of varicolored signal lights on the control panel which is located in the dispatching office in the Philtower Building at Tulsa and which is illustrated in an accompanying picture.

First of Its Kind

In the annual pipe line edition of The Oil and Gas Journal, June 4, 1931, there is a story about the electrical devices used in the Sand Springs remotely controlled station. It will be found on page T-49 under the heading "Remote Control for Electric Stations" and the reader is referred to that article for information about the electrical equipment used and the method of its operation.

The Sand Springs station is situated between Diesel drive stations at Cushing, Okla., and at Alluwe, Okla. With the Cushing station operating at 750 pounds discharge pressure the standing pressure at Sand Springs with the station shut down is 340 pounds. Operating one unit at Sand Springs the intake pressure is about 165 pounds and the discharge pressure about 550 pounds. When operating two units at Sand Springs the intake pressure there is about 5 pounds and the discharge pressure after passing through two centrifugal pumps is about 750 pounds.

Method of Starting

One of the operating problems that confronts the engineers in controlling the Sand Springs station electrical equipment from a distant point is to avoid a sudden rise in pressure as the motor driven centrifugal pumps are started.

Normally, in a manually operated station of the centrifugal pump type to avoid a sudden increase in the line pressure in starting the discharge gate is manipulated by the station operator and in this way the pressure is regulated within the pump and gradually built up in the main line.

In the remotely controlled station the problem of manipulation of the valves and pumps there to accomplish the same results is encountered and is solved by controlling the pressure on the centrifugal station by the pressure, or flow, of the Diesel station at Cushing that supplies the centrifugal station at Sand Springs. There are no station tanks at Sand Springs and the supply of oil comes direct from the Cushing station which is located about 40 miles south.

The pipe work and fittings at Sand Springs station have been designed to bring this station to the utmost degree of simplification in operation. By referring to the piping layout diagram printed with this article this arrangement can be studied and it will be noted that many gate changes have been avoided.

Interior view of The Texas-Empire Pipe Line Co., Sand Springs Station, showing motors and pumps direct connected.

* * * * * * * *

With the Sand Springs station pumps shut down, the Cushing station is pumping at 750 pounds and to start the pumps at Sand Springs the oil dispatcher at Tulsa notifies Cushing to drop the pressure there about 75 pounds.

To lower the pressure at Cushing the operator manipulates the by-pass on the pumps and as all gates at Sand Springs station, except the motor driven gate on the intake side of the station (1) are wide open, the dispatcher can pick any unit or any two units at Sand Springs station and start them from the Tulsa office. The line pressure at Sand Springs is indicated in the Tulsa office by remotely controlled pressure gauges described in the June 4 article referred to.

The pressure at Cushing is lowered in order to avoid high surges in pressure and excessive flow through the pumps at Sand Springs when the unit is started, which would tend to increase electric power demand and might endanger the line or equipment.

As soon as the first unit is in operation at Sand Springs the pressure at Cushing drops to about 480 pounds. Then Cushing starts closing the by-pass slowly and from that time Cushing has complete control of the discharge pressure of Sand Springs station because the Sand Springs discharge pressure can rise only as rapidly as the flow from Cushing station makes it possible.

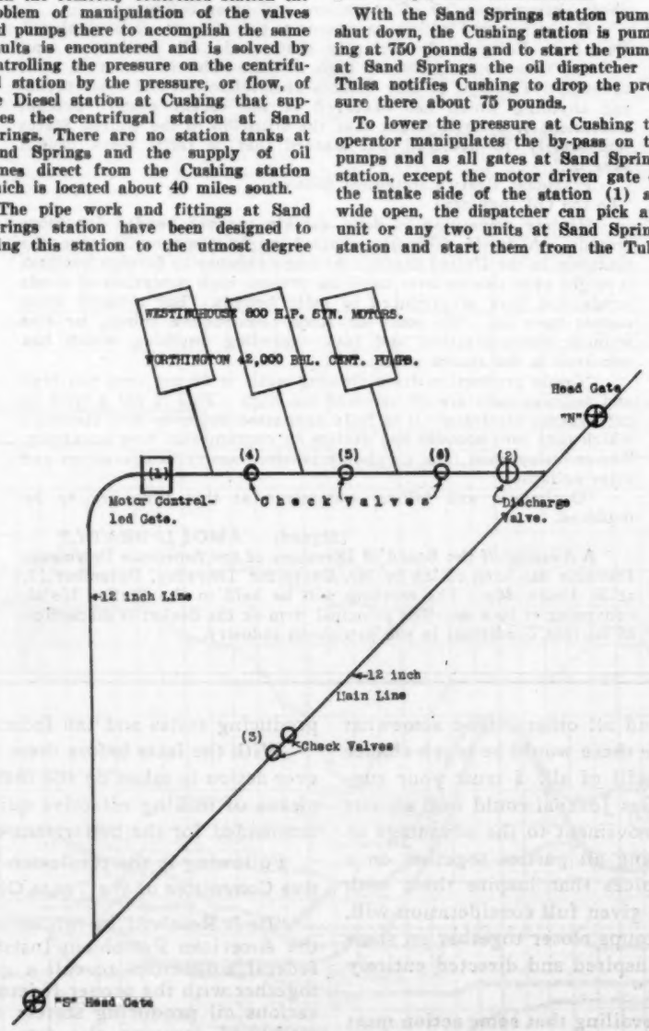


Diagram of station layout showing position of valves at Sand Springs Station of The Texas-Empire Pipe Line Co. Reference marks used in article.

Manipulation of Headgates

If the reader will refer to the description of the operation of the remote control system in the article published in the June 4 issue of The Oil and Gas Journal he will be able to follow the movements of the dispatcher there in starting up the Sand Springs station.

By referring to the sketch accompanying this article, which shows the piping layout at the Sand Springs station, the general arrangement of valves and gates can be seen. Headgates marked "S" and "N" are always open. The check valves marked "3" give a free main line flow while the Sand Springs station is shut down.

As soon as one unit there is started the flow will leave the main line and enter the station header line through the motor driven gate (1), which has already been opened by the oil dispatcher and will then enter the intake side of the unit that is to be operated.

With the checks (4, 5 and 6) on the station header line, any unit or any combination of units can be operated by remote control without a gate change.

The stream passes through header line gate (2) and into the main line, automatically closing the clapper on checks (3) and proceeds on up the line towards Alluwe station.

If for any reason the station is suddenly shut down without time to notify Cushing, then a sudden rise in pressure will occur at Cushing. Each pump at Cushing is equipped with a relief valve and there is also a relief valve in the manifold to protect against such an emergency. However, the shutting down of Sand Springs station does not stop the entire flow as the main line checks (3) immediately open, allowing the

(Continued on Page 94)

Gasoline Situation Abroad and Its Effects on Exports

* * * * * *

By E. B. Swanson

During the past several months the oil industry of this country has found a difficult task in adjusting its operations to meet the declining foreign demand for United States gasoline. Some decrease in foreign consumption was expected to result from adverse business conditions, but the severe drop in shipments, largely the result of increased competition from foreign sources of supply, was unexpected.

Domestic demand for motor fuel during the first nine months of 1931 increased by 4,550,000 bbls. over the corresponding 1930 period, but the decline of 15,093,000 bbls. in gasoline shipments to foreign countries, representing also a loss of about $115,000,000 in value, more than offset the benefits of the domestic gain and was responsible particularly for the inability of the industry to reduce refinery gasoline stocks to calculated economic levels.

* * * *

The influence on refinery gasoline stocks of this decline in foreign shipments is portrayed by a review of recent reports of the petroleum economics committee of the American Petroleum Institute and the Federal Oil Conservation Board. For the six months' period ended March 31, 1931, the refineries in the United States produced a quantity of gasoline which was virtually identical with that regarded by both committees as the probable total motor fuel requirement of the period. Domestic demand proved to be very close to that which had been estimated, but foreign demand was approximately 7,700,000 bbls. less than had been expected. The Institute committee designated a total of 40,000,000 bbls. as the objective for refinery gasoline stocks on April 1, 1931, but the total actually recorded was about 48,000,000 bbls. Had foreign demand continued as expected and had production been unchanged, it is evident that the objective in refinery gasoline stocks would have been reached.

Foreign Supply

In the report of April 7, 1931, covering the period April 1 to September 30, 1931, the present committee of the Federal board anticipated a domestic motor fuel demand of 222,800,000 bbls. during the period. Actual demand during the period, as reported recently, amounted to 223,151,000 bbls., or within .17 of 1 per cent of the estimate. Foreign demand, however, again fell below expectations. Keeping in mind the decline of the preceding six months and utilizing all the then available data, the committee anticipated a decline of 15.4 per cent in gasoline shipments to foreign countries during the six months. In quantity, this meant a drop of 5,274,000 bbls. The actual decline, reported recently, amounted to 9,992,000 bbls., or 29 per cent. With the knowledge which comes with hindsight, it now is evident that the Federal committee anticipated correctly the downward trend in foreign consumption but did not allow for the displacement of United States shipments by gasoline from foreign sources of supply. In other words, the unexpected decline of 4,718,000 bbls. would approximate closely the quantity of United States gasoline calculated to have been displaced by increased competition in foreign markets during the period.

The Federal committee, also in its report of April 7, 1931, anticipated refinery gasoline stocks of 30,600,000 bbls. on October 1, 1931, while the Institute committee, in its corresponding report, designated stocks of 27,184,000 bbls. Actual stocks on that date, reported recently, amounted to 33,329,000 bbls. Had the decline in foreign demand not exceeded that expected and with no change in production, refinery gasoline stocks on October 1, 1931, would have fallen between the levels indicated in the two reports. The Institute committee and the Federal committee, in their reports for the nine months ending June 30, 1932, have again lowered from previous levels the anticipated shipments of gasoline to foreign markets.

—Courtesy Rumanian Legation, Washington, D. C.

Loading terminal at Constanta. Gasoline exports from this Rumanian port during 1931 have more than doubled those of 1930.

* * * * * * * * *

Needed Analysis

In view of the economic importance to the domestic industry of the recent shifts and changes in world gasoline movements, it is believed that some analysis, more complete than that given in the recent Federal report, would be of interest to the oil industry. The changes, however, should not be taken as an indication of the willingness or unwillingness of any one country to purchase from another, but more as an expression of the ability with which international marketing organizations, through agreement or individual initiative, can supply their markets from different sources and, either as a buyer or seller, adjust their operations to meet changing conditions.

That the factors influencing the decline in gasoline shipments from the United States did not operate equally in all areas is shown by a regional comparison of the reported destination of shipments made during the first nine months of 1931 with those of the corresponding 1930 period.

This comparison shows that quantitatively the decline was most severe in shipments to Europe, the principal foreign market for gasoline and also the area most affected by competition from foreign sources of supply, while relatively the decline in shipments to Latin American countries was most important. The decline in shipments to Canada resulted from local conditions, the increase in receipts from countries other than the United States being of minor importance. The comparison would indicate also that shipments to the Near and Far East were influenced less by competitive gasoline from foreign sources than were shipments to the other regions. It is interesting to note that the total 1931 shipments were only slightly larger than the 1930 shipments to European countries alone.

Situation Abroad

The principal European markets for gasoline, are the United Kingdom, France and Germany. The principal foreign sources of gasoline supply, for which current comparative data are available, are Rumania, the U.S.S.R., and the Dutch West Indies. The situation in each of these countries, in comparison with the

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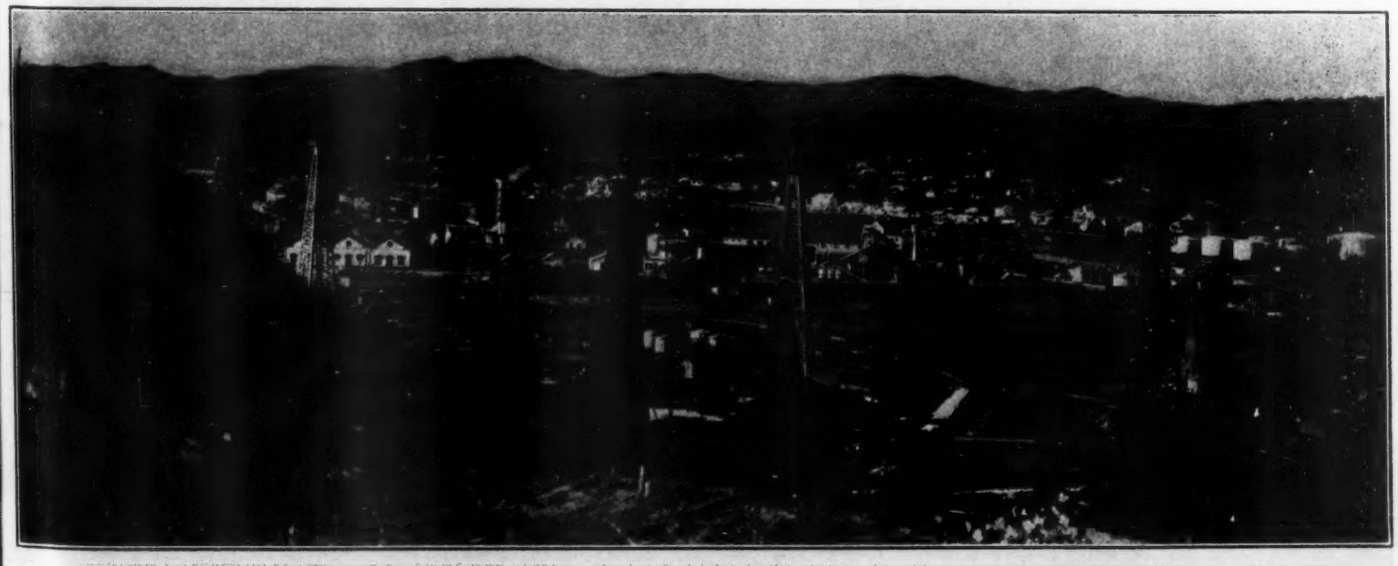
REGIONAL COMPARISON OF GASOLINE SHIPMENTS

(Figures in barrels of 42 gallons)

Destination—	Jan.-Sept., 1930	Jan.-Sept., 1931	Decline	Per cent
Europe	31,213,922	22,533,221	8,680,701	—27.8
Canada	3,361,757	2,333,894	1,027,863	—30.6
Latin America	7,076,565	3,254,912	3,821,953	—54.0
Near and Far East	6,886,554	5,415,431	1,471,123	—21.4
Minor countries	751,874	660,730	91,144	—12.1
Total	49,290,972	34,198,188	15,092,784	—30.6



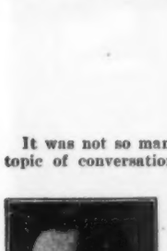
—Courtesy Rumanian Legation, Washington, D. C.

An oil field in the Prahova district. One of the Rumanian areas showing increased 1931 crude oil production

Field Men Discuss Economic Problems

Trend of Thought in Petroleum Industry Well Illustrated at A.P.I. Production Meeting at Drumright, Okla.

By L. G. E. Bignell
Petroleum Engineering Editor



It was not so many years ago that the topic of conversation among a group of oil men, that is, men who actually drill the wells and take crude out of the ground, would have been about the speed with which their various operations had been accomplished and the amount of oil the wells were making. It might therefore, seem strange that during the fall meeting of the Mid-Continent District of the American Petroleum Institute at Drumright, Okla., held on December 11 and 12, that the program ran largely to economic problems and the tendency upon the part of the production man to produce oil efficiently, with the quantity and speed a secondary consideration.

This meeting was attended by over 250 men and by actual check it was found that over 75 per cent of them were men who actually produce oil. This is in itself a rather interesting trend of A.P.I. meeting activities, because the field man is now becoming vitally interested in problems other than the mere mechanics of producing oil and is giving serious consideration to the many other factors that have their direct influence upon his own or his company's success.

The meetings were held in the auditorium of the new High School Building in Drumright and Friday's meeting, opened by William K. Whiteford, Barnsdall Oil Co., Tulsa, chairman of the Mid-Continent District of the A.P.I. Division of Production, with an address of welcome to the members and their guests.

Following Mr. Whiteford, David Trax of the Gypsy Oil Co., Tulsa, advisor for the district, outlined the work that had been accomplished in the various chapters in Tonkawa, Burbank, Drumright and Seminole, Okla. Definite dates have been set for these meetings and they are so scheduled as not to conflict and this permits officers and others to make several meetings upon one trip to the general area.

New officers of the Mid-Continent District of the A.P.I. Division of Production, from left to right: E. L. Bell, vice chairman, Drumright, Okla.; Wallace H. Collins, secretary, Tulsa; R. F. MacArthur, advisor, Tulsa; L. A. Ogden, vice chairman, Bartlesville, Okla.; David L. Trax, chairman, Tulsa.

Attendance at the chapter meetings have been good and ranged from an average of 30 to as high as 125 and as those attending the meetings are actively engaged during the day in their oil field duties this speaks well for the interest being displayed in A.P.I. activities.

One method of creating discussion is to have questions prepared by the men in advance of the meeting and during the meeting discuss them and try to point out practical ways for solving them. This applies to use of drilling and pumping equipment, oil-gas ratios, natural gasoline plants, cleanout problems and many other details common to the oil fields.

The correlation of work done by the headquarters of the Division of Production at Dallas, Tex., and also between the various field chapters in other states was outlined and much good is being accomplished by an exchange of ideas by means of news letters sent out from the Dallas office periodically.

A new chapter is planned for Oklahoma City Pool for the new year and it is also planned that other districts will organize chapters during the coming year.

Discusses Progress Made

D. A. Jordan, chairman of the Tonkawa chapter read his report and E. L. Bell, secretary of the Drumright chapter followed with report of the activities there. Reports were also read from the Burbank and Seminole chapters and all indicated the definite interest being taken in this type of instructive work by the field men.

"Progress in the Oil Industry," is the title of a paper presented by H. M. Stalcup, vice president in charge of production for the Skelly Oil Co., Tulsa, in which he pointed out the great change in viewpoint that has taken place in the oil industry in the past few years and even though conditions have not been as good as might be desired during the past two years, progress has been made in solving many of the industry's vexing problems.

There is a new conception of the principles underlying the operation of the oil industry that has come about by the discussion in open forum of the many ills of the industry and Mr. Stalcup believes that these changes are very broad and will influence basic fundamentals of the industry and that the progress made in this direction has been great and very pronounced.

"This gradual development culminated in the recent discussions before the Production Division meetings of the American Petroleum Institute at Chicago," said

(Continued on Page 96)

Fall meeting, Mid-Continent District of the A.P.I. Division of Production held in Drumright, Okla., December 11 and

Present Methods Encourage Big Waste

Destruction of Human Values an Important Cost Society Pays for Rush Attendant to Competitive Drilling

By Earl Oliver*

Some 38 years ago the United States government proposed to open the Cherokee Strip in Indian Territory for settlement. This was an area bordering on Kansas, 60 miles wide and 200 miles long, extending westward from the Osage Nation toward the mountains. It had been reserved to the Cherokees for an outlet into hunting territory.

These lands could have been made available for settlement in any one of many ways, but the method chosen resulted in one of the great races of all time being staged, in which it is said hundreds of thousands of people participated. Fine home-seeking, law-abiding men, women and children, gamblers, gangsters, toughs and outcasts, on foot, on horseback, in wagons, ox carts and buggies were scattered along a 400-mile line all ready to go at the crack of the guns. As noon approached a lull occurred. Suddenly puffs of smoke were seen and the mad race was on. The first to stake a claim or first at the land office was the owner of the land.

From fellow townsmen who participated in the run we have a drab picture of the years immediately following. Facilities were inadequate. Privation ensued. From two to five persons contended for each claim. Trouble brewed, minimized, however, after the excitement was over by a growing conviction that the prizes were not worth fighting for. Fraud, bribery and intimidation, nevertheless, were the order of the day. For three or four years the area was dominated pretty much by toughs and gangsters. Eventually, however, the conservative element got the upper hand and law and order were evolved.

Perhaps an occasional Roman holiday like that of September 16, 1893, is justified in the life of a nation for the romance it supplies; but a study of the immediately ensuing years demonstrates it was destructive of human values and disappointing to those who lived through the aftermath. It was not a good method for constant repetition. Others were adopted for later openings of public lands. Romance can be achieved at less cost to society than through the adoption of these methods as a permanent system.

An Old Court Decision

Approximately 55 years ago, some 15 years after the beginning of the oil industry, a Pennsylvania court initiated a seemingly innocent principle of law setting forth ways and means of acquiring ownership to oil and gas. It gave to each individual landowner the right to drill into a common pool and extract all the oil and gas he could take out through wells drilled on his own land. Since many other landowners would also attempt to extract the maximum quantity of oil and gas from the common pool the success of each was dependent upon the speed with which he extracted these products. It developed a competitive race for extraction. In a certain respect it was similar in theory to the method applied to the opening of the Cherokee Strip and produced somewhat similar results. Title to property depended upon winning a race to appropriate. This method of acquiring title has always been found unsatisfactory. The wasteful destruction of the vast herds of buffalo and other wild game until government applied specific rules of capture in such detail as would not be practical if applied to a great industry is another familiar example.

Like those who formulated the plan of determining ownership of land in the Cherokee Strip, this Pennsylvania court might have utilized any one of several other standards of determining ownership to the oil and gas; but it chose this one and thereby caused to be reproduced at the discovery of each new oil pool all the waste of human effort, the destruction of human beings, the confusion and inefficiency that characterized the opening of the Cherokee Strip.

Every individual present at this meeting is familiar with the mad rush that has occurred at the discovery of almost every new oil pool since the beginning of the industry. Towns and cities sprang up over night. They lacked schools, churches, sanitation, good roads, law and order—everything that experience has demonstrated society needs for the development and maintenance of good citizenship. On the other hand gambling halls, booze joints, houses of prostitution, thugs and grafters supply the atmosphere among which oil field workers must live and bring up their children. Add to this destruction of human lives and human character the indescribable waste of oil and gas induced by the competitive extraction system of oil field development, not to mention fake stock promotions and other forms of graft promoted by speculative appropriation, and one begins to sense the magnitude of the price society is paying for perpetuating a poorly devised method of determining each owner's share of oil and gas in the pool underlying the land owned by him.

Wasteful Extraction

The Creator placed these products in a sealed reservoir from which they could be drawn upon in an orderly manner as needed without waste and at a minimum of cost. They have lain there perhaps ten million years awaiting utilization and would continue to remain a like period without loss. However, man has adopted a method of appropriating them that not only destroys in 10 years that which took ten million years to deliver, but in addition destroys himself in the taking. To the man from Mars there is perhaps little difference between mankind and the jackal family in some of their methods of appropriation.

The history of development of this oil pool over which we are now standing will best serve to illustrate what I am attempting to describe. It was discovered in March, 1912, and has produced to this date 300,800,000 bbls. of oil. Perhaps it is not far from correct to say it will yet produce 37,000,000 bbls., making a total ultimate production of 337,800,000 bbls.

It is also safe to say more gas from this pool was blown into the air than was consumed in useful purposes. We now know that instead of 337,000,000 bbls. this pool could have been made to produce two or three times that amount. Instead of the gas being blown into the air it could have been used to bring about this increased oil recovery at less cost per barrel and could then have been used either as a cheap fuel to build up industries in this locality, providing diversified means of employment for years to come, or could have been transported to distant points for domestic consumption—all at great profit to the owners of the gas and permanent advantages to Drumright and the men, women and children brought into this locality as an incident to the development and operation of this great oil and gas pool.

This chart will show the trend of operations. The pool was discovered at a time when the oil industry was just recovering from the long demoralization induced by the Glenn Pool. The price of oil had gradually climbed from 15 or 20 cents per barrel until it reached, in March, 1914, $1.05 per barrel. But three years after the initial discovery, or one and one-half years after discovery of the deep sand, production in this pool reached a peak of 305,000 bbls. per day (April, 1915) and the price was driven back to an official quotation of 40 cents, although much oil sold for less. Fifty per cent of the pool's ultimate output was produced during the first five years of its life at a time when it was not needed and the price was low. The remaining 50 per cent will require 50 years or more to produce.

Development at Cushing

Now as to the human element. In March, 1912, when the discovery well came in the whole area underlain by the Cushing Pool was a desolate, blackjack covered region with a remote cabin here and there, miles apart, occupied generally by some poor Indian allottee. Roads were few and poor.

The Secretary of the Drumright Chamber of Commerce has advised that by 36 months later some 30,000 human beings lived, or perhaps more properly

(Continued on Page 98)

*Address delivered before Mid-Continent section of the A.P.I., production division, at Drumright, Okla., December 11.

...is a portion of the crowd of about 250 oil field men who attended this meeting, which was very successful in every detail.

East Texas Allowable Again Reduced

Governor Cuts Production to 100 Bbls. per Well. Commission to Hold Hearing on Acreage-Unit Basis. Governor Maintains Position

AUSTIN, Tex., Dec. 14.—Oil production in the East Texas Field was cut down from 125 to 100 bbls. daily per well, effective Friday at 7 a.m., in an order issued by Gov. Ross S. Sterling Thursday, and indications were given the Texas Railroad Commission will call hearings to consider substituting the acreage-unit for the well basis of proration.

Governor Sterling issued his order cutting the field to approximately 338,100 bbls. daily during a conference with Brig. Gen. Jacob F. Wolters, military commander of the oil field; Atty. Gen. James V. Allred and Asst. Atty. Gen. Fred Upchurch; Chairman C. V. Terrell and Commissioner Lon A. Smith of the Railroad Commission; E. F. Smith, special state counsel in federal court litigation against both the military orders and the new conservation law; and Maj. Harry Johnson of the martial law staff.

Governor Sterling referred inquirers to the Railroad Commission for plans as to the commission's prospective hearing. Chairman Terrell said announcement will have to await a commission conference and the return of Commissioner Pat M. Neff to the city. He said he could not give advance assurance that a hearing will deal with the acreage-unit plan, such as recently was advocated by many oil operators in the field as a means of cutting down new drilling, and as supported by Governor Sterling. The Railroad Commission will consult with Attorney General Allred on plans for a hearing, Mr. Terrell said.

The commission originally set a per well limit on the field, during operation of martial law, but since then has left the several reductions to military orders of the governor.

There is no plan now to wind up the military operation in the field, Governor Sterling replied to questions. Brigadier General Wolters returned to the field immediately after his conference with the governor. The governor's production limit order is the fifth since martial law started.

Chairman Terrell later said developments indicated a possible near end of martial law in the field, and that the Railroad Commission has continued to keep a group of officials in the field in charge of the conservation administration, aside from the military limit on daily production.

Governor Sterling, however, disclaimed a sentiment credited to him by Commissioner Lon A. Smith of "being afraid of his position" with reference to martial law.

"It has come to my attention," Governor Sterling said in a prepared statement, "that Lon A. Smith, railroad commissioner, was quoted that I had said during a conference with the railroad commissioner that I was 'afraid of my position' with reference to martial law in the East Texas oil field. I made no such statement to Mr. Smith or anyone else, and I am at a loss to know why Mr. Smith would make any such statement, if he has been correctly quoted. The military forces and myself have been co-operating in every way possible with the Railroad Commission and shall continue to do so."

Commissioner Smith followed Governor Sterling with the comment, "what I said was that Governor Sterling seems to want to get out from under martial law in the East Texas oil field. He has asked the commission to call a hearing, the ultimate effect of which would be to establish Railroad Commission conservation rules in the East Texas Field. This, I would assume, would be to enable him to withdraw the troops. Governor Sterling evidently sees, as others see, that martial law cannot be continued indefinitely in the oil field."

Governor Sterling has employed former

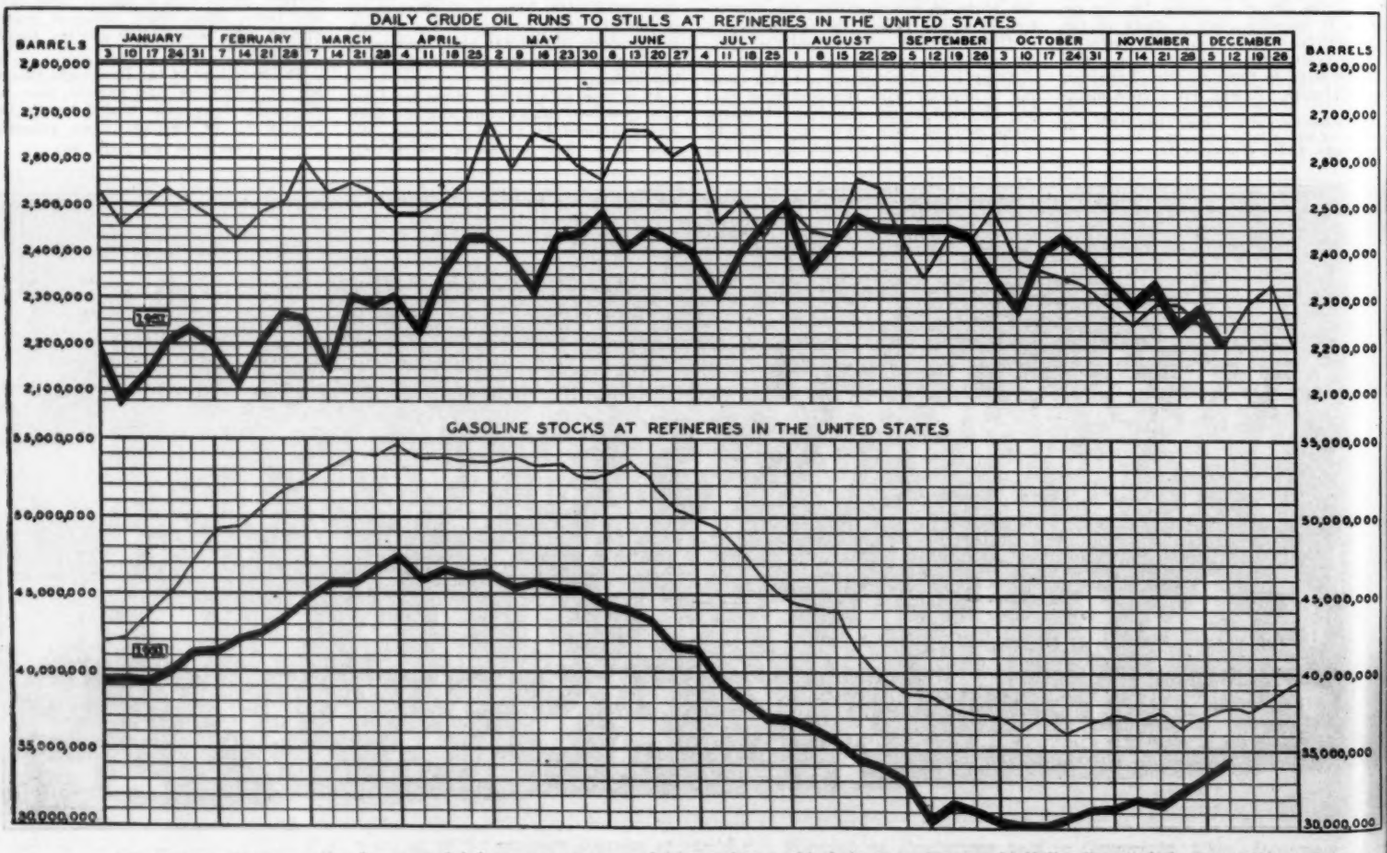
(Continued on Page 81)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending December 12:

	Week ending December 12, 1931				Week ending December 5, 1931				Week ending December 13, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	437,600	4,173,000	9,361,000	100 0	425,600	4,221,000	9,723,000	100.0	441,700	5,263,000	10,618,000
Appalachian	91.8	93,200	1,231,000	1,679,000	91.8	100,100	1,166,000	1,648,000	93.8	71,000	861,000	951,000
Indiana, Illinois, Kentucky	98.9	308,700	3,736,000	5,590,000	98 9	293,300	3,534,000	5,775,000	97.5	274,300	4,232,000	3,747,000
Oklahoma, Kansas, Missouri	89.6	235,600	3,226,000	4,401,000	89.6	224,900	3,023,000	4,606,000	89.4	254,300	3,523,000	4,494,000
Texas	91.3	536,100	7,157,000	11,701,000	91 3	533,400	6,922,000	11,735,000	91.9	508,300	6,763,000	10,832,000
Louisiana and Arkansas	98.9	171,000	998,000	3,808,000	98 9	158,600	972,000	3,937,000	98.3	149,400	1,269,000	2,197,000
Rocky Mountain	89 4	42,100	1,495,000	783,000	89 4	37,100	1,387,000	797,000	92.1	40,800	1,581,000	1,001,000
California	97.1	452,600	12,811,000	96,641,000	97.1	440,400	13,021,000	96,943,000	98.8	545,300	15,198,000	104,041,000
Total United States	95.2	2,270,900	34,826,000	133,964,000	95.2	2,213,400	34,256,000	135,164,000	95.7	2,285,100	37,680,000	137,881,000
Texas Gulf Coast	99.8	417,600	5,486,000	8,640,000	99.8	421,400	5,272,000	8,654,000	100.0	332,600	5,424,000	8,190,000
Louisiana Gulf Coast	100.0	119,900	862,000	3,026,000	100.0	114,100	820,000	3,151,000	100.0	109,900	1,014,000	1,274,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

Your Surplus Refinery Gas Will Reduce Operating Costs

MODERN refineries operating cracking plants are producing a surplus of refinery gas. Some are reducing their operating costs by using TRANSIT Gas Engine Driven Hot Oil Pumps, because they operate most efficiently on the cheapest of all fuels, refinery gas. Others are investigating.

Where installations of this type are in daily operation, they have proved that they are the most efficient and economical hot oil pumping units.

If you are interested in reducing your operating costs, our engineering staff will gladly co-operate at your request.

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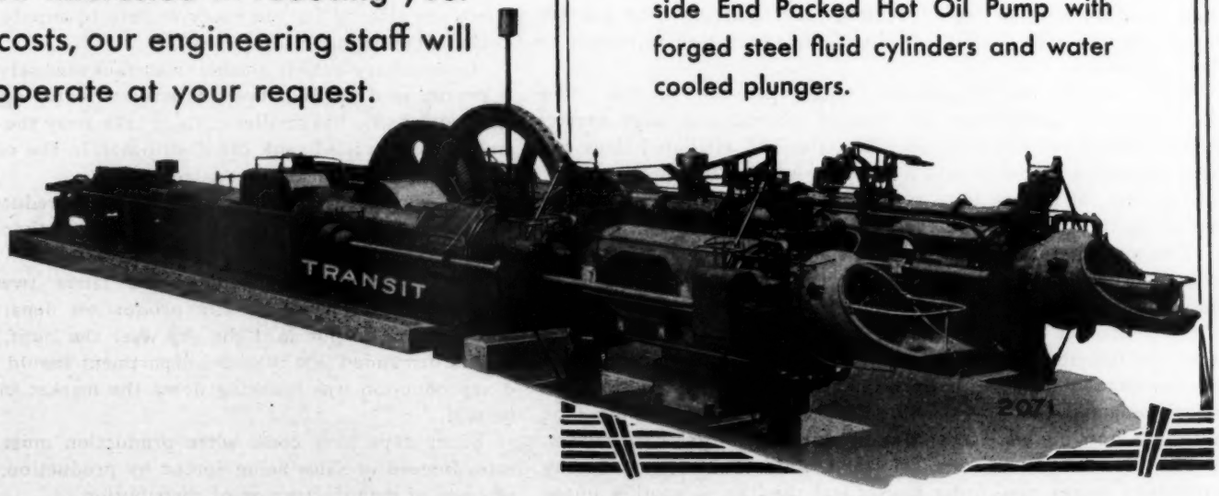

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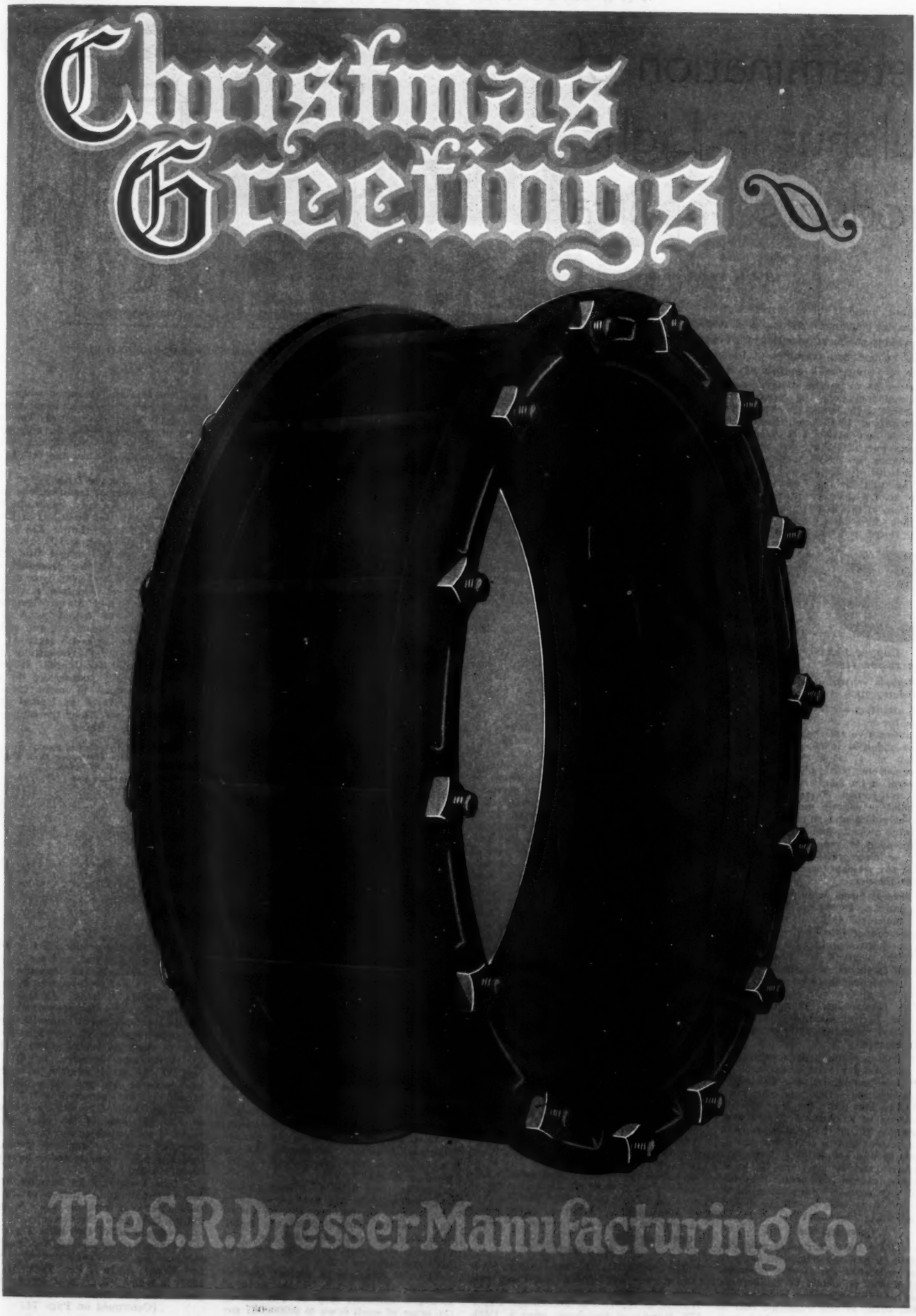

Christmas
Greetings
The S. R. Dresser Manufacturing Co.

Determination of Sulphur in Light Products Important

* * * * * *

By C. K. Francis, Ph.D.
Technical Editor

Sulphur is one of the most useful and too often also one of the most useless of the chemical elements. As the chief material for the manufacture of sulphuric acid, probably the most essential of all chemicals, and its utilization for the treatment of rubber, are examples of its value in the industries. The presence of sulphur, or compounds containing it, in a raw material is usually of such consequence as to require careful examination and frequently the introduction of expensive methods for its elimination and control. A small quantity of sulphur in the raw material is responsible for a large part of the expense necessary for producing in satisfactory condition many articles of commerce. Iron ores cannot be used for the manufacture of iron and steel if they contain much more than a trace of this element, because sulphur tends to produce a poor iron, lacking in strength and easily broken. The manufacture of the best iron and steel must be guarded at every step so that sulphur cannot be introduced in harmful quantities. The introduction of sulphur into a metal will often cause serious corrosion and even complete disintegration.

Fig. 1. Copper dish for corrosion test

Much attention has been directed to the study of the corrosion of the metal parts of the automotive engine. This corrosion has been explained as being caused by the formation of a black deposit on the tubes, carburetor parts, pistons, cylinders and several of the smaller parts, such as the jets and gauzes. These deposits have been found to contain sulphates of the metals, sulphides and sulphuric acid. It is the large deposits and extensive corrosion that must be avoided; a slight tarnishing or discoloration of a polished metal is not serious enough to be given any consideration.

The several forms of sulphur are subject to change under the influence of heat, air and moisture. One compound of sulphur may change into another substance having properties quite different from those of the original. The forms of sulphur most frequently reported to be present in petroleum and petroleum distillates include: Free sulphur, hydrogen sulphide, mercaptans, thiophenes and thiophanes, carbon disulphide, sulphonic acids, alkayl sulphates and occasionally sulphur dioxide.

With few exceptions, the condition in which sulphur may exist in a petroleum product is seldom determined. The important consideration is that petroleum products shall be essentially free from the corrosive forms of sulphur. It is the common practice to find the total quantity of sulphur present and to make the qualitative test by the copper strip test. The copper strip test is considered to be of importance because it indicates the presence of any corrosive form of sulphur, but is not to be looked upon as in any way indicating the quantity.

Corrosion Test

The test for the detection of corrosive substances in gasoline originated early in the development of the gasoline business. A method was published by Sanders in the Journal of the Chemical Society, Vol. 101, 362, 1912. It was suggested that if a piece of pure copper foil, which had been cleaned with a 10 per cent solution of potassium cyanide, became discolored when immersed in the sample, corrosive sulphur was present. It was thought that the treatment with potassium cyanide acted to sensitize the copper.

The standard method, A.S.T.M. method D130-27T, is to mechanically clean a strip of copper, 0.5 by 3 inches, place this in a sample bottle, cover it with the sample and hold in a suitable bath at 122° F. for three hours. Sometimes the test is made by placing the bottle, etc., in boiling water for 30 minutes. The strip when compared with an unexposed piece of copper should show no more than a slight discoloration to be negative; if the darkening is more than this, the sample is reported as not passing the test. The dark or black substance is copper sulphide.

If appreciable quantities, more than a trace, of sulphur, hydrogen sulphide and some forms of organic sulphur are present the copper will be blackened. Some of the compounds of sulphur that may be present in gasoline are decomposed at the temperature of the test and escape in the gas from the liquid; these are corrosive and will be detected, if a portion of the strip is exposed above the surface of the liquid, by the discoloration of the upper part of the metal. Birch and Norris point out, Ind. Eng. Chem., 21, 1.087, 1929, that some petroleum distillates which have been treated with acid may contain a form of sulphur that does not react corrosive in the cold but gives a positive test with copper when heated to its boiling point. Their explanation is that free sulphur has united with certain mercaptans to form a complex polysulphide and this is decomposed at the higher temperature to produce the corrosive form.

Fig. 2. Doctor test

The corrosion test is widely used in the marketing of gasoline because a negative result is commonly required in the specifications. It is of assistance for the control of the sweetening, or treating operation by the sodium plumbite process for preventing the presence of excess quantities of sulphur. Free sulphur, introduced as a part of the doctor treatment, is soluble in gasoline to the extent of approximately 0.4 per cent; consequently it is an easy matter to oversulphur gasoline.

Sensitivity

The sensitivity of the copper strip toward free sulphur and hydrogen sulphide has been investigated by C. E. Waters, as reported in Technologic Paper 177, Bureau of Standards, page 8, 1920.

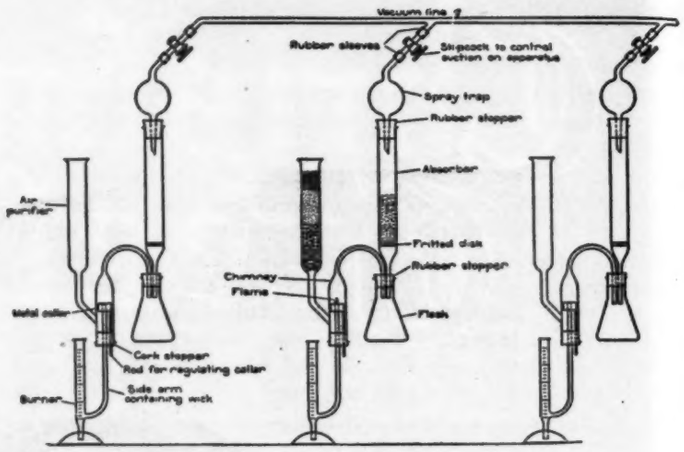


Fig. 4. Edgar and Calingaert lamp set-up

* * * * * * * *

The data following are from this source: A sample of white medicinal oil which did not darken copper and which was found to contain too little sulphur to detect by analysis, was selected for the base material. Recrystallized sulphur was dissolved in this oil in varying quantities and this series of solutions examined.

The strongest solution contained 0.10 free sulphur, and by suitable dilution liquids containing down to 0.0001 per cent, or one part in 1,000,000 were prepared. Two or three drops of the oil were placed on the freshly polished surface of the metal. Blank tests were made on the original oil at the same time to show any possible air contamination.

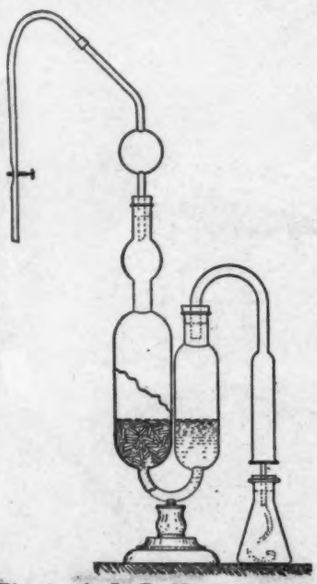


Fig. 3. A. S. T. M. apparatus for total sulphur

Concentrations of from 0.10 to 0.050 per cent caused a blackening of the copper in a few minutes; with 0.033 to 0.017 per cent sulphur perceptible color formed in 30 minutes, and with 0.01 per cent inside of an hour. When left for 20 hours, oil containing 0.0002 per cent of sulphur, or 2 to 1,000,000, caused a just perceptible darkening of the copper. At the final dilution, 0.0001 per cent, no action could be detected.

Similar tests with oil through which hydrogen sulphide had been passed for a few minutes showed that this oil caused an immediate darkening of the metal. This solution contained 0.037 per cent sulphur, equivalent to 0.039 per cent hydrogen sulphide.

Tests of solutions of greater dilution indicated that sulphur, in the form of hydrogen sulphide, may be detected by the sense of smell down to 0.0000037 per cent, but that the action on copper of a 0.000037 per cent sulphur solution at the end of 20 hours is doubtful. The sensitivity of the copper test for sulphur appears to be between 0.0002 and 0.00037 per cent sulphur, when the test is continued for 20 hours.

Copper Dish

There are several modifications of the corrosion test, the most important being the copper dish test described in Bureau of Mines Technical Paper 323-B. This method is to evaporate 100 c.c. of the sample in a polished copper dish, Figure 1. The purpose of this procedure is to show the presence of both gum and corrosive substances. Aviation gasoline for use by the United States Government must pass this test without showing any gray or black corrosion and any gum deposited shall not exceed 3 mgm.

The Report of Investigations 3152 (see The Oil and Gas Journal, November 26, 1931, page 16), considered the quality of 312 samples of motor fuels collected in all parts of the United States. A summary of results by the copper dish test are given in Table 1.

TABLE 1—Classification of Samples According to Results of Copper Dish Test, All Samples

Residue in milligrams per 100 milliliters—	Per cent of samples
Nil	20.2
5	30.8
10	25.3
15	11.2
20	3.2
25	3.0
30	2.2
35	1.0
40	1.0
45	1.0
50	.3
55	.3
60	.3
65	.3
Over 100	1.0

The degree of reproducibility of results of the copper-dish test, and the degree of precision attainable in interpreting results in terms of performance, have been discussed in R.I. 3.092. In that report certain tolerances for reproducibility of results were suggested. Classification of the present series of determinations in view of those tolerances shows that:

1. Sixty-three samples, or 20.2 per cent of the total number, averaged 5 milligrams or less per 100 milliliters of sample and were reported as "nil."

2. Two hundred twenty-eight samples, or 73.1 per cent of the total number, varied 4 milligrams or less per 100 milliliters of sample in duplicate determinations and may be considered to have given check results.

3. The remaining 21 samples, or 6.7 per cent of the total number, varied more than 5 per cent from the mean value and did not give good check results.

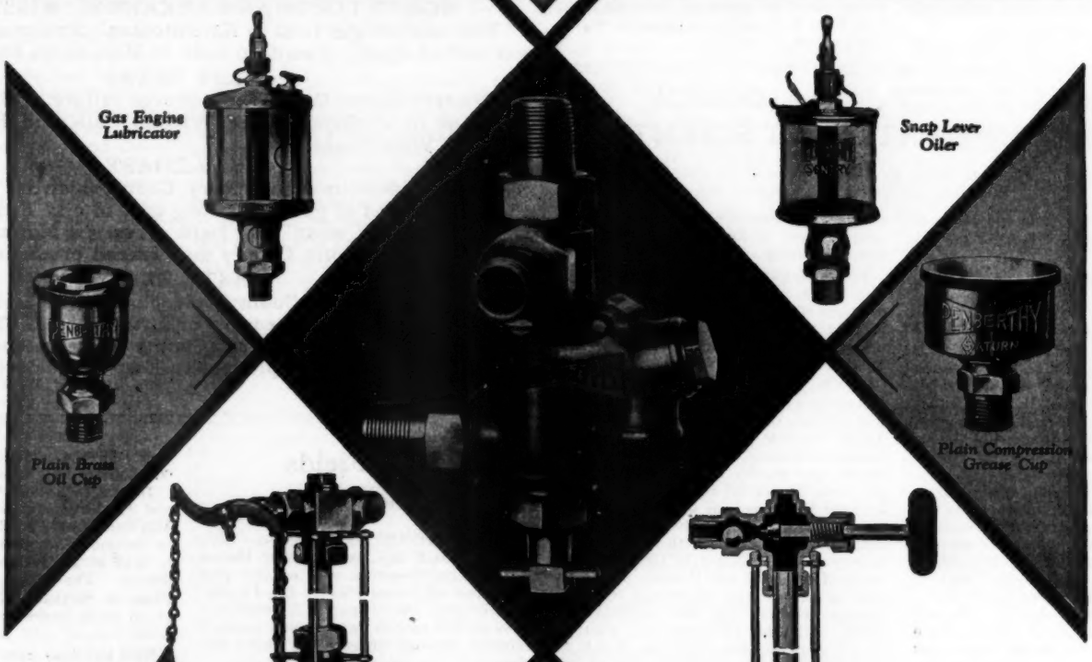
Quantitative Corrosion Test

A quantitative method for corrosive sulphur has been suggested by Garner and Evans, J. Inst. Pet. Tech. 17, 451, 1931, in which 0.5 gram of copper-bronze powder is placed in a flask, 250 c.c.

(Continued on Page 74)

PENBERTHY PRODUCTS

PREDOMINATE



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MAJOR PIPE LINE ACTIVITY INDICATED IF RUMORS OF PROJECTS ARE TRUE

Reports are prevalent that a number of new major pipe line projects are under consideration. It is generally believed the Ajax Pipe Line Co. will start construction soon of an additional 10-inch line from Glen Pool, Okla., to Wood River, Ill., with loops to be constructed on existing pipe lines extending east from Wood River. This company now has two 10-inch lines with a capacity of 65,000 bbls. daily.

Belief that the Magnolia Pipe Line Co. will construct a line from Oklahoma to Wood River gained strength during the past week. This proposed project was discussed in The Oil and Gas Journal of November 26. The merger of the Standard Oil Co. of New York and Vacuum Oil Co. with the probability of an expansion of marketing outlets in the Middle West is given as the basis for belief such a pipe line will be built.

It is being rumored the Texas Pipe Line Co. is considering construction of a large diameter pipe line from East Texas to Wood River. The company states such a rumor is unfounded. Such a line would make available to eastern pipe line companies large quantities of East Texas crude. Another rumor is to the effect the Texas Pipe Line Co. is figuring on an 8 or 10-inch line from East Texas to New Orleans.

Action by the Natural Gas Corp. of America in increasing its capital stock from 500,000 shares to 1,500,000 shares is significant. This company controls the natural gas pipe line from Amarillo, Tex., to Chicago and its action in increasing its stock is taken to mean it intends to parallel its 24-inch pipe line. In support of this belief is the report the company is in the market for a double acting valve which could be placed at intervals along both lines to permit an automatic change over in case of breaks.

GEOLOGICAL SOCIETY OF AMERICA CONVENTION TO ATTRACT SCIENTISTS

By L. G. E. Bignell
Petroleum Engineering Editor

Preliminary reports from the office of Dr. Charles P. Berkey, secretary for the Geological Society of America, indicate that the meeting of the society to be held in Tulsa December 29 will be well attended by prominent geologists and others associated with geological work. This is the first time that the G.S.A. has met west of the Mississippi River, and as Tulsa is centrally located, it is hoped that men interested in geological subjects will avail themselves of this unusual opportunity to attend the full sessions, extending from December 29 to January 4.

In addition to the technical sessions to be held December 29-31, inclusive, in the Mayo Hotel, Tulsa, several interesting field trips have been planned to be conducted from December 28 to January 4, inclusive. The Paleontological Society, the Mineralogical Society of America, the Society of Economic Geologists, Inc., and the American Association of Petroleum Geologists will meet in Tulsa at the same time the Geological Society of America is holding its meeting. These meetings will add to the general interest, and Section E of the American Association for the Advancement of Science will hold meetings in New Orleans, La., on January 1 and a joint session with the G.S.A. is being arranged.

Frank R. Clark, Mid-Kansas Oil & Gas Co., Tulsa, is general chairman for all meetings and is arranging details at the meeting place, while the secretaries and presidents of the various organizations are handling details for their respective societies.

Among the prominent geologists who will attend the Tulsa meeting will be Alfred Church Lane, president of the Geological Society of America. He is best known geologically from his work with the State Geological Survey in Michigan. In 1899 Mr. Lane was elected state geologist of Michigan. Doctor Lane's more than 20 years' service with the Michigan Survey was terminated in 1909 when he resigned to accept the Penrose professorship in geology and mineralogy in Tufts College. Doctor Lane has continued at Tufts with the exception of wartime leave, when he was with the Y.M.C.A. in France and in 1919 was head of the department of mining in the A.E.F. University at Bonn, and has continued some studies in the copper and petroleum regions of Michigan.

Dr. Alfred C. Lane, president, Geological Society of America, Tufts College, Boston, Mass.

High Spots in Field News

OKLAHOMA

Completion of potential tests brings ouput below allowable. Plan to restrict production to 500,000 bbls. daily.

KANSAS

Efforts to develop Ellworth Arch Field with one well to 40 acres blocked by protests of landowners in district.

ROCKY MOUNTAIN AREA

Artesia gas pool extended northeast. Four northeastern Colorado tests disappointing, but area too large to be conclusive.

SOUTHWEST TEXAS

Salt water in Bee County test. East offset to Damac discovery in new pool southwest of Pettus Pool shows 5 feet of oil.

CALIFORNIA

New field indicated by well in Middle Dome of Kettleman Hills flowing at rate of 25,000,000 feet of gas daily from 9,208 feet.

NORTH LOUISIANA-ARKANSAS, MISSISSIPPI

New shallow gas field in Natchitoches. Rhodessa Field has best gas well of week. Two deep tests in Mississippi being watched.

WEST TEXAS

Western Crane County test proves failure at 4,510 feet. Two locations in Panhandle, 5 in Wichita Falls and Ranger districts and 2 in West Texas.

GULF COAST

Rank wildcat in Montgomery County blowing from 15,000,000 to 20,000,000 feet of gas with strong odor of oil. First production in county and may mean new field. Test in Marianna district of southwestern Victoria County may extend producing area 3 miles.

EAST TEXAS

Northeast Upshur County test shows 1,900 feet of salt water, condemning it as an extension of Lathrop area. Test in extreme southern end of southern Rusk County being watched. There were 103 locations and 97 completions in East Texas during week. Now 3,407 wells in field.

Late Fields

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Dec. 15.—Slick Estate's No. 2 Ray, east offset to Damac No. 1 Ray, discovery well of new pool southwest of Pettus Pool in Bee County, on drill stem test of sand at 3,900-08 feet showed 450 pounds in four and one-half minutes through quarter-inch choke and showed 5 feet of oil.

The Texas Company's No. 1 Gremmel, half mile southwest, and northwest offset to Buchanan & Lefevre's well, Monday was coring for sand at 3,865 feet. Al Buchanan's No. 1 Dorenfield in Simms Pool, 11 miles south, was coring for sand below 3,400 feet Monday.

Bennett Oil & Gas Co. of Houston has bought 1,200 acres in a new shallow pool in Starr County, with several oil wells completed, for $10 an acre cash and $10 more in oil.

N. Y.-PENN GAS FIELD

The Lycoming Natural Gas Co.'s No. 1 Boom, in Lawrence Township, Tioga County, Pennsylvania, was drilling in Oriskany sand with a showing of 50,000 feet of gas at the top, which was at 4,114 feet. The same company's No. 1 Wheeler was drilling in a sand with no gas showing at a total depth of 5,527 feet. The Penn-United Gas Co.'s No. 2 Meaker, near the discovery well in the field, was expecting the lime, which overlies the Oriskany sand, at any time. It was drilling carefully at a depth of 4,235 feet.

In the Wayne Village Field in Schuyler County, New York, Don R. Engle's No. 1 Sumner was reported good for 2,500,000 feet of gas per day.

OKLAHOMA

During the first 10 days of December the Oklahoma City Field was overproduced. Production for the first 10 days totaled 2 048,277 bbls., a daily average of 204,827 bbls., while the daily allowable is only 180,000 bbls. The pipe line shipments for the same period totaled 1,838,657 bbls., a daily average of 183,865 bbls.

In the Fish Pool, along the Seminole and Hughes Counties boundary line, the Mid-Continent Petroleum Corp.'s No. 1 in Section 9-7-8, found a showing of oil in sand at 2,934-37 feet and was drilling deeper. The Texas Company's No. 1 Eliza, in Section 19-7-8, flowed 275 bbls. of oil in 24 hours from a total depth of 3,104 feet.

Two locations were announced Monday, December 14, in the Fish Pool, Producers & Refiners Corp.'s No. 1, NW cor. SE SW, Section 9-7-8, and G. Orr's No. 1, NW cor. SW NW, Section 15-7-8.

CALIFORNIA

LOS ANGELES, Calif., Dec. 15.—The Petroleum Securities is believed to have discovered a new oil field in the Middle Dome of Kettleman Hills, although this will not be definitely determined for another few days. No. 1 Burbank, the company's discovery well in that area, came in early Sunday morning flowing at the rate of 25,000,000 feet of gas per day from 9,208 feet. The production has been rather slow in cleaning up and it may be another few days before an accurate gauge can be made. The initial flow showed some salt water present which may be coming from the bottom of the hole at 9,332 feet, in which event the bottom plug appears defective. The Petroleum Securities did not pick up a black oil zone comparable with the Ochsner horizon in the North Dome of Kettleman

(Continued on Page 99)

LARGER DEMAND FOR MAPS

Oil and natural gas pipe line projects being discussed at this time have stimulated the demand for the large wall maps compiled and published exclusively by The Oil and Gas Journal showing all crude oil trunk, gasoline and natural gas pipe lines in the United States. These maps are printed on especially heavy bond paper and have the oil and gasoline pipe lines on one side and the natural gas lines on the reverse side. The price of the maps is $1 postpaid.

Western Crane Test Proves Failure

Expectation of Another Major Pool Disappointed. Ector Test Increases Gas Output. Two Locations in Panhandle and Five in Wichita

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Dec. 14.—Southwest Oil Production Co. and Penn Oil Co.'s No. 1 Tubbs in Section 3, Block B-27, western Crane County, has proven a failure at a total depth of 4,510 feet, failing to pick up the pay horizon found in the discovery well of the area, Gulf Production Co. and Cranfill Brothers' well, 3 miles to the southeast. This well is evidently a freak well, possibly producing from a crevice, and the test in Section 3, proving like the No. 1 Muir test, 2½ miles south of the discovery well, missed the pay.

When the discovery well picked up the pay below the sulphur water level in October, 1930, it was thought that possibly another major pool had been found in this part of the county, approximately 18 miles west of the Church & Fields and McElroy Pools, but at the present time, and after two dry holes have been drilled in opposite directions from the discovery, such a pool seems improbable. A test to the northeast may prove the pool to be running in that direction, but it is not known whether such a test will be drilled in the near future. Such a move is rather doubtful at this time.

Ector County

Weekly Oil Corp., McCurdy and Casteel's No. 1 Cowden in Section 33, Block 43, T.&P. Survey, Ector County, struck an increase in gas during the week at 3,798 feet which blew the tools up the hole and stuck them there. First gas was struck at 3,795 feet, and the volume now reported is estimated at from 500,000 to 2,500,000 feet. A closer estimate cannot be made with tools in the hole. Tools are now being fished. The test is around 14 miles south of the Stanolind Oil & Gas Co.'s producer and 5½ miles southeast of the Gault-Brown dry hole.

Fisher County

The Royston Pool of Fisher County was extended approximately one-half mile west this week when The Texas Company's No. 1 Miller in Section 72, Block 1, H.T.&B. Survey, filled up 1,750 feet of oil in 24 hours, looking good for around 200 to 300 bbls. per day on the pump. The well refuses to flow. Lime was topped at 3,198 feet, casing was set at 3,216 feet, and it is to be completed at 3,233 feet. Pay was topped at 3,225 feet. Drilling of this well was done in order to hold the lease upon which it is located.

There were two locations in West Texas during the week, one in Pecos County and one in Jones County. Six tests were completed, one temporarily abandoned in Scurry, one in Reagan County, which was merely spudded, was abandoned, and the one in western Crane County. Three producers were also completed.

PANHANDLE

There were two locations staked in the Panhandle district during the week, while five wells were completed, all gas or oil producers. Two were in Carson County, two in Gray County and one in Hutchinson County. The production in the district is still below the allowable of 55,000 bbls., only a little over 53,000 bbls. per day producing during the week.

WICHITA FALLS AND RANGER

There were five locations staked in the Ranger district during the week, while three wells were completed.

WEST TEXAS PRODUCTION
Week Ending December 14

County—	No. wells	Prod.
Crane	377	17,734
Crockett	51	1,127
Ector	78	6,393
Fisher	79	895
Garza	2	22
Howard-Glasscock	544	25,327
Irion	9	44
Jones	89	1,300
Loving	46	3,487
Mitchell	111	1,753
Pecos	551	65,025
Reagan	355	29,898
Runnels	5	60
Scurry	5	0
Upton	266	4,625
Taylor	263	62
Ward	79	3,959
Winkler	595	35,915
Total production this week		197,627
Total production last week		200,174
Decrease		2,547

COMPLETIONS IN WEST TEXAS

Crane County

Southwest Oil Production Co. and others' No. 1 Tubbs, dry and abandoned, total depth 4,510 feet.

Fisher County

The Texas Company's No. 1 Burnham, top pay 3,097 feet, initial production 97 bbls. first hour, total depth 3,101 feet.

Scurry County

Simon & Brother's No. 1 Kruse, temporarily abandoned, total depth 2,500 feet.

Reagan County

Cromwell and others' No. 1 University, abandoned, total depth 253 feet.

Ward County

Gulf Production Co.'s No. 19 O'Brien, top pay 2,605 feet, initial production 75 bbls., total depth 2,708 feet.

Pecos County

Culberson Brothers' No. 3-B Monroe, top pay 520 feet, initial production 210 bbls., total depth 541 feet.

Distribution report of West Texas, for week ending December 2, follows:

Shipments Through Main Trunk Lines

Company, size, location—	Amt.
Atlantic, 10-in., Houston	21,200
Gulf, 10-in., Ranger	23,951
Humble, 2-8-in., San Angelo	23,597
Humble, 10-in., Comyn	50,224
Illinois, 2-8-in., Del Rio	24,463
Magnolia, 8-in., De Leon	10,347
Paso-Tex, 8-in., El Paso	8,006
Shell, 10-in., Cushing, Okla.	38,576
Shell, 10-in., Houston	16,974
Texas, 12-in., Houston	6,663
Total	224,001

Shipments to West Texas Refineries

Burford Ref. Co., Pecos City	3,385
Cosden Ref. Co., Big Spring	4,460
Col-Tex Ref. Co., Colorado	7,102
Great West Ref. Co., Big Spring	1,362
Continental, Pyote	None
Signal Ref. Co., Santa Rita	271
Wickett Ref. Co., Wickett	576
Howard County Ref. Co., Big Spring	None
Total	17,156

Shipments by Tank Car

Fox and Thorsen, from Mertzon	20
Total	20
Daily average distribution	241,177
Daily average production	200,603
Daily average to storage	63

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Texhoma Natural Gas Co.'s No. 1 Urbanczyk, top pay 2,537 feet, initial production 20,300,000 feet of gas, total depth 2,715 feet. Ryan Consolidated Oil Co.'s No. 7 Black, top pay 3,018 feet, initial production 185 bbls., shot 200 quarts 3,023-94 feet, total depth 3,108 feet.

Gray County

Magnolia Petroleum Co.'s No. 1 Heaston, top pay 3,163 feet, initial production 240 bbls., total depth 3,225 feet. Skelly Oil Co.'s No. 2 Heaston, top pay 3,180 feet, initial production 350 bbls., shot 210 quarts 3,206-90 feet, total depth 3,290 feet.

Hutchinson County

Smith & McDaniel's No. 3 Pitcher, top pay 3,070 feet, initial production 255 bbls., shot 180 quarts 3,065-3,137 feet, total depth 3,152 feet.

NORTH CENTRAL TEXAS PRODUCTION
Week Ending December 12

Panhandle district—	
Carson County	5,157
Gray County	32,837
Hutchinson County	12,846
Moore County	1,450
Wheeler County	751
Total production this week	53,041
Total production last week	53,537
Decrease	496
Wichita Falls district—	
Archer County	12,022
Baylor County	555
Clay County	561
Cooke County	1,715
Foard County	70
Haskell County	22
Jack County	1,937
Montague County	4,569
Throckmorton County	496
Wichita County	17,474
Wilbarger County	11,720
Young County	11,553
Total production this week	62,694
Total production last week	63,258
Decrease	564
Ranger district—	
Brown County	2,908
Callahan County	1,500
Coleman County	2,901
Comanche County	751
Palo Pinto County	340
Eastland County	2,695
Shackelford County	3,382
Stephens County	4,157
Total production this week	18,634
Total production last week	18,838
Decrease	204

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending December 14

BREWSTER COUNTY

Company, well, farm name, section and block— Remarks:

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 46, Blk. G-15, G.C.&S.F. Sur. ..... S.D. 1,935 ft.

E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur. ..... S.D. 1,302 ft.

Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 15, Blk. G-15, G.C.& S.F. Sur. ..... S.D. 2,900 ft.

Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine ..... S.D. 1,750 ft.

COCHRAN COUNTY

Penn Oil Co.'s No. 1 Myrick, C Labour No. 30 of League 129, Carson County School Lands ..... Drlg. 4,750 ft.; est. 100,000 ft. gas 4,707 ft.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur. ..... S.D.

Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock ..... S.D. 1,850 ft

CRANE COUNTY

Gulf Prod. Co.'s No. 8 McElroy, 2,310 ft. from N and E of Sec. 196, Blk. F, C.C.S.D.&R.G.N.G. Sur. ..... Rig.

CROCKETT COUNTY

Doleman & Moore's No. 1 Ferner 2,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. .... Spudded and S.D

CULBERSON COUNTY

Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... S.D. 1,280 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur. ..... To resume drilling

ECTOR COUNTY

Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 33, Blk. 43, Twp. 2s, T.&P. Sur. ..... Drlg. 3,205 ft.

H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur. ..... S.D. 3,280 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.F. No. 7,247 ..... Shut down 1,960 ft.

(Continued on Page 82)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending December 14

CARSON COUNTY

Company, well, farm name, section and block— Remarks:

H. A. M. Oil Co.'s No. 2 Cooper, 330 ft. from S and E. Sec. 5, Blk. 9, I.&G.N. Sur. ..... Location.

Texhoma Natural Gas Co.'s No. 1 Burnett, C NE, Sec. 54, Blk. 4, I.&G.N. Sur. ..... Rigging up standard tools.

Texhoma Natural Gas Co.'s No. 1-G Gore, 1,320 ft. from S and 1,327 ft. from W, Sec. 42, Blk. 4, I.&G.N. Sur... Rig.

Texhoma Nat. Gas Co.'s No. 1-T McCoy, 1,257 ft. N, 1,309 ft. E line, Sec. 41, Blk. 4 ..... Drlg. 1,850 ft.

Texhoma Nat. Gas Co.'s No. 3 Schaffer, C NW, Sec. 63, Blk. 4, I.&G.N. Sur. ..... Drlg. 1,825 ft.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ..... T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. ..... S.D. 2,508 ft.

Downey et al's No. 1 Beasly, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur. ..... Rigged up.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, C NW, Sec. 18-3n-2e ..... Spudded.

GRAY COUNTY

Back & Barber's No. 1 Back, 660 ft. from S and 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur. ..... Drlg. 200 ft.

Boyes et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. ..... Spudded and S.D.

Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,750 ft.

Dixon Creek Oil Co.'s No. 2 Horner, 330 ft. from N and E, of Sec. 139, Blk. 3, I.&G.N. Sur. ..... Standardizing.

Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur. ..... Spraying 20 bbls. daily; T.D. 2,387 ft; recmtd. csg. 2,387 ft.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. .... S.D. 3,010 ft.

Graham et al's No. 1 Webb, 330 ft. from N and E of E½ NE, Sec. 62, Blk. 25, H.&G.N. Sur. ..... Drlg. 1,875 ft.

Jewel Oil Co.'s No. 1 Meers, 330 ft. from S and W of NW SW, Sec. 106, Blk. 3, I.&G.N. Sur. ..... Running 10-in. csg. 900 ft.

(Continued on Page 82)

Upshur County Test Into Salt Water

Condemned as Extension of Lathrop Pool, Southern Rusk County Test May Extend Production. More Wildcatting in East Texas

By L. E. Bredberg

DALLAS, Tex., Dec. 14.—On the night of December 11 a 14-foot core was taken in the Shasta Oil Co. and others' No. 1 Hall in southeastern Upshur County. Four and one-half feet of this core was reported as saturated, and the test appeared as a possible producer at that time. Later a drill stem test was made from 3,730 feet to bottom of hole 3,808 feet and the well showed around 1,900 feet of salt water condemning it as an extension well of the Lathrop area. Sand was topped at 3,800-08 feet in the test, and three total depths were reported on the well, 3,786, 3,798 and the last named, 3,808 feet, which seems to be regarded as the correct one. Elevation of the test is 349 feet, throwing bottom of the hole far below the salt water level found in the main part of the field.

This test is 6½ miles northeast of the Cranfill & Reynolds' No. 1 Rash in the Eubanks Survey, which is standing shut down at 3,728 feet after testing some oil and showing as a possible producer from a sand horizon which is a considerable depth below the top of the sand found in the main body of the pool 4 miles to the south.

Southern Rusk Test Watched

Another test in the district, on the extreme southern end of the pool, Peyton Brothers' No. 1 Perry in the L. N. Sparks Survey, southern Rusk County, approximately 3 miles south of production, has been closely watched all week to observe whether the pool would be extended farther in that direction proving up several hundred more acres to production.

There is but little information given out on this test, but at the present time it is considered as looking encouraging as a producer although no saturated sand has been recovered in the several cores taken during the past few days. What might be considered as top of the sand was sandy shale and sand found at 3,678 feet. It is now shut down at 3,702 feet for drill stem test this week. Elevation of the test is 419 feet, throwing bottom of the hole at minus 3,283 feet, or around 63 feet below the tabulated water level in the field.

If the test makes a producer it will prove up the Pure Oil Co.'s Graham Lake block to the north in which the Stanolind Oil & Gas Co. recently acquired a half interest and on which it has staked three locations, two in the Cadene Survey and one in the Thomas White Survey. The Texas Company is also drilling three tests to the north and west of the Peyton Brothers' test, and these tests will also be closely watched when they reach critical depths.

There was considerable royalty buying and selling in the vicinity of the last named test, and the Shasta test also, but very little acreage changing hands due to major companies holding the acreage around the Peyton test, and operators holding their acreage around the Shasta test, "riding" the well to a completion.

Locations and Completions

Locations dropped in the district this week from 128 to 103, while completions also registered a decrease, falling from 128 last week to 97 this week. The Seven Wells Oil Corp. abandoned its wildcat in Henderson County, No. 1 Hughes, at a total depth of 4,441 feet. North Gregg had its usual heavy list of locations, numbering 44 this week, while 33 wells were also completed in this area. South Gregg received 15 new locations, and 20 wells were completed in that part of the county while southern Rusk County had 31 locations and 24 completions. One dry hole was completed in Smith County.

East Texas production for December 10, the last day of production under the 125-bbl. per well allowable, was 417,821 bbls. from 3,357 wells, total number of wells in the field at that time numbering 3,407. Pipe line runs from the field for that day were 407,718 bbls., over 10,000 bbls. below the day's production.

With production starting under the new allowable of 100 bbls. per well on Friday, the 3,407 completed producers would have a potential of 340,700 bbls. per day, or around 87,000 bbls. per day less than the last day's production under the old order. Fifty wells did not report production for the 24 hours ending at 7 a.m., December 11.

Operations by Pools

Operations by pools in the district are as follows: Lathrop area, 267 wells; Gladewater area, 39; south of the Sabine River in Gregg County, 141; Bateman area, 60; Joiner area, 158; Joiner-Smith County area, 29, making a total of 694 operations in the field as of December 8. Locations as of December 10 were 130, with 173 derricks up, 51 tests rigging up, 41 shut down and 299 tests drilling, all of which comprise the 694 operations.

The leading producing and operating companies are as follows:

Company—	Total number of producers	Operations	Actual drilling
Humble Oil & Ref.	410	58	24
Gulf Production	211	30	17
Magnolia Petroleum	192	26	14
Sinclair Oil & Gas	161	10	3
Shell Petroleum	108	10	7
Sun Oil	95	19	6
Tidal Oil	91	8	1
Stanolind Oil & Gas	88	21	4
Arkansas Fuel Oil	64	23	8

The seven largest purchasers in the area are as follows: Humble Oil & Refining Co., connected to 785 wells running 96,499 bbls. per day; Magnolia Pipe Line Co., connected to 490 wells running 60,813 bbls.; Gulf Pipe Line Co., connected to 246 wells running 30,332 bbls.; Shell Pipe Line Co., connected to 169 wells running 21,190 bbls.; Sinclair Pipe Line Co., connected to 270 wells running 33,065 bbls. per day; Tidal Refining Co., connected to 147 wells running 18,222 bbls.; Sun Pipe Line Co., connected to 128 wells running 15,833 bbls., and The Texas Pipe Line Co., connected to 120 wells running 13,227 bbls.

Official Production Report

The official report on production and pipe line runs covering the East Texas Field in November, and signed by Luther Swift, deputy supervisor, gives the total production of the field as 11,651,661 bbls., a daily average of 388,389 bbls. The pipe line runs were 11,495,831 bbls., a daily average of 383,194 bbls. The total number of wells on November 30 was 3,243 on 1,601 leases.

The largest producers during the month with a total production of 30,000 bbls. or more in the month were as follows:

Company—	No. of wells	Produced in Nov. (bbls.)
Amerada Pet. Corp.	13	43,175
Atlantic O. P. Co.	48	161,477
Arkansas Fuel Co.	58	215,850
Barnsdall Oil Co.	19	74,100
British Am. O. P. Co.	18	67,100
Calif. Pet. Co. of Venezuela	21	66,100
Cordova Union Oil Corp.	10	39,611
C. & P. Oil Co.	8	31,591
Cranfill & Reynolds	24	92,963
Devonian Oil Co.	16	58,490
East Texas Ref. Co.	55	191,058
Harry W. Elliott	14	45,628
Empire G. & F. Co.	24	79,560
Fain & McGaha	9	31,423
Federated Oil Co.	8	31,195
F. H. & E. Oil Co.	14	53,265
Golding & Murchison	26	97,568
Gulf Coast Oil Co.	8	31,090
Gulf Production Co.	121	785,395
Haynes Drlg. Co.	10	38,126
Houston Oil Co.	37	137,239
H. L. Hunt, tr.	65	236,148
Humble O. & R. Co.	398	1,459,123
Jenkins Oil Corp. and Hamilton Pet.	11	42,736
E. M. Jones and Houston Oil Co.	8	31,317
John E. Mabee	10	31,145
Magnolia Pet. Co.	185	666,418
Margay Oil Co.	9	33,075
Mid-Kansas O. & G. Co.	29	99,875
Navarro Oil Co.	12	31,026
A. G. Oliphant	9	36,352
Pilot Oil Co.	11	42,396
Prairie O. & G. Co.	23	82,019
Republic Prod. Co.	18	75,440
Roeser & Pendleton, Inc.	21	81,956
Shaw Oil Co.	8	31,187
Shell Pet. Corp.	102	389,935
Sinclair O. & G. Co.	134	589,353
Snowden & McSweeney	11	43,109
Stanolind O. & G. Co.	86	301,820
Sun Oil Co.	93	325,199
Superior O. & G. Co.	9	32,273
The Texas Company	65	230,000
Tidal Oil Co.	87	324,762
Turman Oil Co.	22	80,927
Vacuum Oil Co.	14	52,001
Ward Oil Co.	13	49,004
Woodley Pet. Co.	12	40,554
Yount Lee Oil Co.	75	269,702
49 operators	2,101	7,501,497
530 operators	1,142	4,150,164
579 operators	3,243	11,651,661

There was no comment in the district against Governor Sterling cutting the wells to 100 bbls. per day, practically all of the operators and companies favoring the move, and being against proration being turned back to the Railroad Commission.

Kilgore Field

Priest and others' No. 1 Mayfield in the Daniel Clark Survey, east of production in the Kilgore area, was completed on December 13 through 2-inch tubing, looking much better than wells to the west of it and on the east edge of the field. Several of these wells are pumping. This well topped the sand at 3,646 feet and was drilled to a total depth of 3,680 feet. One or two wells east of production in the Lathrop area have shown up in the same manner as this well, extending production farther east than expected.

Total daily average distribution from East Texas fell far below daily production during the week, distribution averaging 368,500 bbls. per day while production averaged 410,860 bbls., a difference of over 42,000 bbls. per day which went to storage.

Anderson County

More wildcatting is reported for East Texas. Dr. J. N. Gee of Bethel in Anderson County, is assembling a block of 5,000 acres centering around that town, in the northwestern part of the county, and approximately 1½ miles northeast of the Pure Oil Co.'s deep test, and will drill a well on this block.

A. M. Phillips and others are taking a block about 3½ miles east of Kilgore,

EAST CENTRAL TEXAS WILDCATS

Week Ending December 14

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
C. R. Wilmuth et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 139-ac. tract, M. Main Sur.	S.D. 800 ft.

BOWIE COUNTY

Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur.	S. D. 4,503 ft.
W. S. Langford's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 3,510 ft. from S of survey in L. M. Rice Sur.	S.W. on drill stem test; S.D. 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, H. Kimble Sur.	S.D. 1,000 ft.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Harper and Perkinson's No. 1 J. T. Lowery, 650 ft. from N line, 150 ft. from W line of Block No. 5 on a 139.6-ac. tract, 4 miles W of Troupe, C. B. Jennings Sur.	Rigging up.
Wilson & Stubbs' No. 1 L. Robart, 450 ft. from S and 150 ft. from W of lease, J. B. Wolfin Sur.	S.D. 1,861 ft.

DALLAS COUNTY

Paris' No. 2 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur.	T.D. 1,230 ft.; S.D.
Joe Wilson's No. 1 fee, 600 ft. from N line and 600 ft. from W line of 1,500-ac. tract, John Scroggs Sur.	Drlg. 465 ft.

DELTA COUNTY

Worthington et al's No. 1 Pejernett, 776 ft. from S and 150 ft. from W in E. Chick Sur., 1½ miles W of Horton	S.D. 3,315 ft.

ELLIS COUNTY

Clark Brooks' No. 1 C. W. Golliday, 300 ft. from S line and 300 ft. from E line of tract and survey, John Bones Sur.	Set 8-in. csg. 1,475 ft.
E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 150 ft. from S of Orland, Orlo Wheeler Sur.	S.D. 1,435 ft.
Worthen Pet. Co.'s No. 1 Cerf, 2½ miles NE of Ennis.	S.D. 2,269 ft.

FANNIN COUNTY

Lucas Dev. Co.'s No. 1 R. Peeler, 175 ft. from E and 600 ft. from S lines of farm, F. L. Hart Sur.	S.D. 700 ft.
Ed. V. Parson's No. 1 Morgan, J. E. English Sur.	Fishing 2,959 ft.

FRANKLIN COUNTY

Tom Harper's No. 1 fee, 150 ft. from N line and 200 ft. from E line of 116-ac. tract, W. M. Dawson Sur.	Derrick.

GREGG COUNTY

Arkansas Fuel Oil Co.'s No. 1 M. Smith, 330 ft. from N and E lines of 60-ac. lease, W. H. Castleberry Sur.	Rigging up.
Arkansas Fuel Oil Co.'s No. 1 C. L. Taylor, 295 ft. from N and S lines and 330 ft. from W line of E 21.94 acres of S 39.76 acres of 114.76-ac. tract, W. H. Castleberry Sur.	Derrick.
Atlantic & Pacific's No. 1 B. Robinson, 330 ft. from N and W lines of 63-ac. tract, S. Davis Sur.	S.D. 3,536 ft.
Ausley and Massingill's No. 1 A. Harris, center of 3-ac. tract, Gladewater Townsite, M. Dillard Sur.	S.D. 1,700 ft.

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and approximately 1 mile southwest of the Gulf Production Co. and Byrd and Frost dry hole, and will drill a 3,800-foot test. The test is to be drilled in the southwest corner of the J. F. Holt 200-acre tract. The block centers around the Hayden Edwards Survey.

G. B. Ashburn, who drilled a 2,900-foot dry hole on the Berry farm in the J. Duncan Survey, 5 miles south of Brownsboro, in Henderson County, and who retained 1,300 acres in the block, has assigned part of his acreage to Robinson and others of Fort Worth, who will start a Woodbine test by January 1. The test will be 1½ miles northeast of the dry hole.

A derrick is being erected on the J. D. Jumper tract in the James Webb Survey, on a block 5 miles southeast of the town of Como in Hopkins County, for a Woodbine test.

COMPLETIONS IN EAST TEXAS

Gregg County

Amerada Petroleum Corp.'s No. 3 Bumpass, top sand 3,587 feet, initial production 133 bbls. per hour through 1-inch tubing choke, total depth 3,617 feet. Arkansas Fuel Oil Co.'s No. 1 F. T. Rembert, top sand 3,460 feet, initial production 120 bbls. per hour through open tubing, total depth 3,460 feet. Atlantic Oil & Production Co.'s No. 2 M. B. Fisher, top sand 3,514 feet, initial production 186 bbls. per hour through open tubing, total depth 3,680 feet.

J. W. Clark's No. 1 W. Jones, top sand 3,492 feet, initial production 165 bbls. per hour through 1-inch tubing choke, total depth 3,528 feet. Clark & Cowden's No. 2 J. N. Christian, top sand 3,614 feet, initial production 125 bbls. per hour through three-fourths inch tubing choke, total depth 3,665 feet. Columbia Oil & Gas Co.'s No. 1-A W. M. Harley, top sand 3,550 feet, initial production 86 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,550 feet. Cox & Hammon's No. 4 Rodden, top sand 3,606 feet, initial production 180 bbls. per hour through open tubing, total depth 3,618 feet. Day and others' No. 1 J. T. Jeter, top sand 3,599 feet, initial production 125 bbls. in 5½ hours through one-fourth inch tubing choke, total depth 3,608 feet.

Empire Gas & Fuel Oil Co.'s No. 3 Aiken, top sand 3,543 feet, initial production 32 bbls. in 15 minutes through open tubing, total depth 3,609 feet. Same company's No. 2 T. W. Lee, top sand 3,505 feet, initial production 42 bbls. in 15 minutes through 1-inch tubing choke, total depth 3,540 feet. Same company's No. 4 L. Rogers, top sand 3,546 feet, initial production 53 bbls. in 15 minutes

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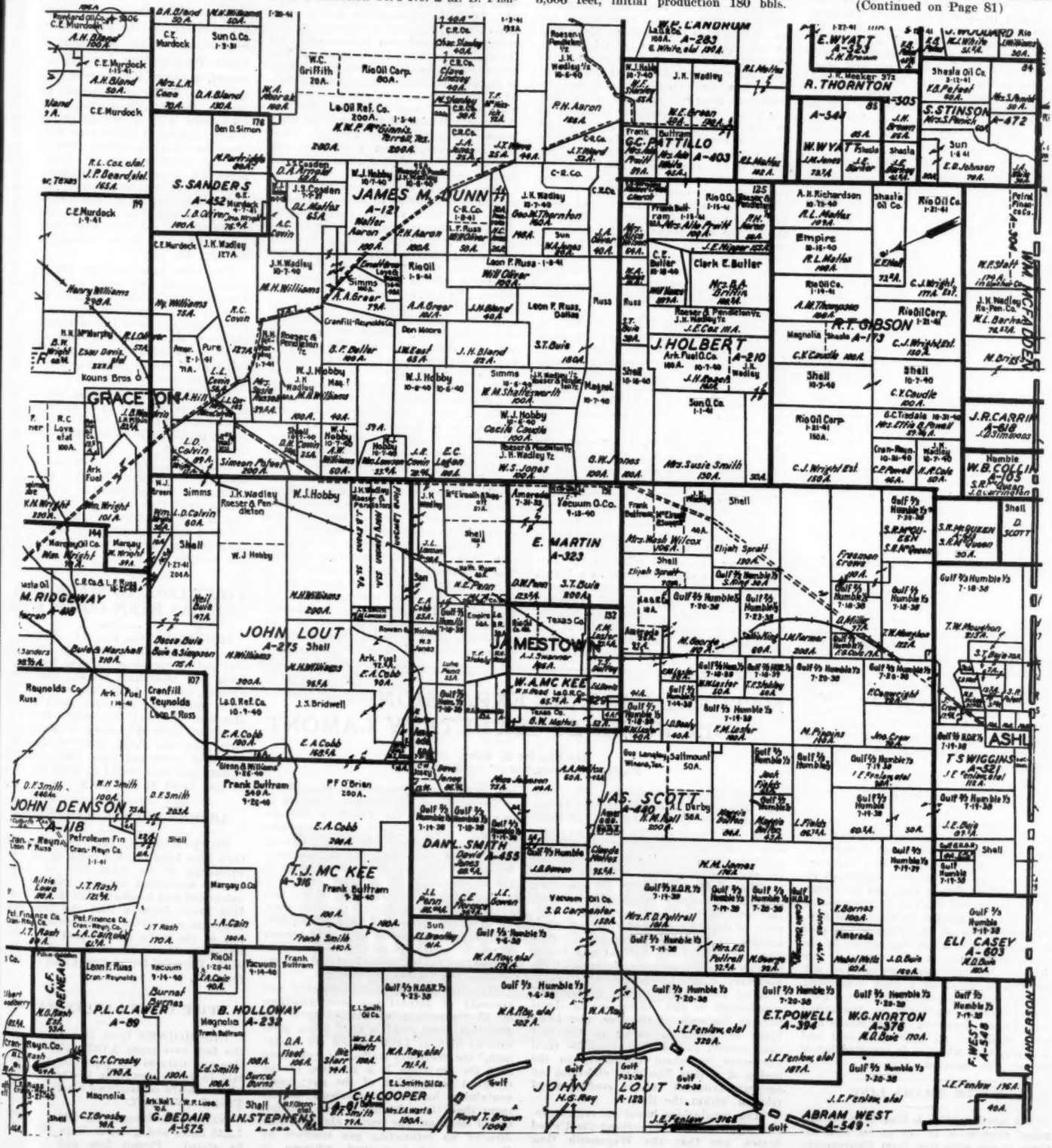

Plat showing location of Cranfill & Reynolds' No. 1 Rash and Shasta Oil Co.'s No. 1 Hall in southeastern Upshur County, East Texas. The Cranfill & Reynolds test is approximately 4 miles north of production of the Lathrop Pool, and the Shasta test another 6 miles farther northeast.

—Courtesy of the Zingery Oil Map Co., Fort Worth, Tex.

Pipe Line Construction News

NEW YORK COMMISSION HEARING ON GAS LINES

ALBANY, N. Y., Dec. 14.—The Public Service Commission has completed exhaustive hearings on the natural gas situation in New York State. Considerable evidence was accumulated at six public hearings held over a period of weeks in several up-state cities, at which representatives of natural gas and other public utility interests testified regarding their plans and organizations.

The report by the commission will be subdivided into four parts, relating to the property owner, the producer, the distributor and the consumer.

In the first section the report will review leases, right of way and other matters involving owners of farm and other lands in western New York where gas acreage is located, and will touch upon conditions in adjoining counties in Pennsylvania. The second section will discuss leaseholds by drilling companies, drilling operations, costs and contracts with distributing companies. The third section will consider the distributing companies, their contracts with operators, costs, pipe lines, and plans and proposals for extensions. The fourth section will take up the relation of natural gas problems to the consumer, such as stock purchases, the amount and nature of gas reserves, the cost of supplying gas to the consumers and the outlook for the future.

It is indicated that the commission will not discuss the form or substance of rates in the report, and that its policy in this respect will appear only in specific instances. The cities of Syracuse and Elmira are expected to provide separate instances of mixed-gas rate hearings in the course of the next few weeks, so that the commission will then have opportunities to consider the merits of the rates proposed.

Present plans call for the completion of a pipe line from the Pennsylvania border to Syracuse by the end of the year and the construction by the Niagara Hudson group of a pipe line between Syracuse and Oswego. About 1,000 men are now employed in building the line into Syracuse, which will cost about $2,500,000.

The amount of gas that the Lycoming Natural Gas Co. is expected to deliver to Syracuse when it begins operations is estimated to be around 10,000,000 feet daily, this amount likely to be increased by further extensions in New York and other states.

CANNOT PIPE GRAIN

MILWAUKEE, Wis., Dec. 12.—A. O. Smith Corp. engineers report present pipe line development is such that it would be impossible to ship grain long distances via pipe lines, as has been suggested recently. More than a year ago the corporation conducted a series of experiments to seek a new market for its welded pipe. Grain was one of the commodities used in these tests. While the results of the experiments were kept secret, it is understood the engineers encountered difficulties in pumping a bulk commodity such as grain because of friction. They have not given up hopes of eliminating this obstacle, however. Experiments also were conducted on pulverized coal and iron ore, with which it is reported better success was obtained.

SOUTH OMAHA LINE

The Northern Gas & Pipe Line Co. has asked permission to lay at its own expense a gas pipe line from Plattsmouth to South Omaha, Neb., to serve the Cudahy Packing Co. and Armour & Co. packing plants.

LOW POINT IN STEEL ACTIVITY LEFT BEHIND IN OCTOBER; IMPROVING NOW

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 14.—As to the Ajax Pipe Line Co.'s project to lay an oil line from Oklahoma to Wood River, near St. Louis, pipe mills have been cognizant of the project for a couple of months or more but state that the pipe order has not been placed and that negotiations have not approached the closing stage. Nothing definite is known as to the reported Magnolia project. As stated a week ago delays have occurred as to the extension to Milwaukee of the Texas to Chicago natural gas line of the Continental Construction Co., to involve eventually two lines of 20-inch.

Demand for casing and other oil country goods increased slightly about a month ago and seems to be holding its own, but the rate is very light. Demand for standard or merchant pipe is undergoing little or no seasonal decrease, as would be expected since there are virtually no stocks to liquidate against January 1 inventory.

There are distinct indications that the low point in general steel trade activity was left behind in the latter part of October, with promise of practically continuous though slow increase. Steel ingot production in October was officially reported at 27.76 per cent of capacity and next to the last week of the month was low, at around 26 per cent. November is now reported at 30.01 per cent, representing 8 per cent increase in the average daily tonnage, any increase at all from October to November being rather unusual. Last week's rate was about 28 per cent and a dip around holiday time is the usual thing. Seasonal increase after January 1 is certain but is expected to be slow, whereby it may be continuous, the usual thing in the past having been a sharp increase to a March or April peak and then seasonal decrease to July. Apparently all steel consumption has been shaken down to a minimum, leaving no room for anything but improvement. The railroads are buying nothing. A few receiverships have just been set up and some others are expected. In such a transitory period there is no buying, but once a receivership gets going court permission is obtainable for the making of some improvements. The automobile industry continues its failure to increase production largely as predicted at intervals for two months past and with stocks of new and used cars very thoroughly liquidated there will be much heavier production some time, the question being simply how much this will precede the time of year when the public usually buys cars.

Wire mills have announced an entirely new sales practice as to prices. Hitherto there have been various classifications, changing more or less from time to time according to the competition, with a few specially preferred buyers, then jobbers as a class, then retailers or consumers buying in carload lots, all with different prices. By the new system the class of buyer will have nothing to do with the price, the character of order being the sole determinant. Minimum prices are put up a dollar a ton on nails and $3 a ton on barb wire and staples, with no change in plain wire. A straight carload, all nails for instance, will be at the minimum price, $1.95 in the case of nails. A mixed carload will be $2 a ton higher. In both cases there is the usual 10 per cent discount on extras. A joint carload, to two buyers, is likewise $2 advance but with no discount on extras, a pool carload, to three or more buyers, is $5 advance over minimum, with no discount on extras and less carloads are $8 over minimum, with no discount. The object is to stabilize the market, give the jobbers a better margin on distribution from stock and throw carload business of consumers direct to mills.

Automobile sheets are easier at 3 cents to 3.10 cents against 3.10 cents formerly and heavy gauge unannealed sheets, 10 gauge base, 1.65 cents to 1.70 cents against 1.70 cents, with annealed unchanged at 1.85 cents.

NATURAL GAS LINE EXPANSION DISCUSSED BY SECRETARY LAMONT

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Dec. 14.—Pipe lines are given generous attention in the annual report of the Secretary of Commerce to Congress. Mr. Lamont comments on the expansion of the natural gas industry during the past year bringing gas into competition with other fuels.

"The results of tests of 30 operating pipe lines disclose a relationship between the coefficient of friction and the variables of the Reynolds criterion, but when applied to the limited range of conditions in present-day natural gas transmission practice the effect is minor," the Secretary states. "Such factors as roughness of the interior walls, presence of condensates or dirt, differences in elevation at the ends of the line, and flexibility of operation owing to the fact that natural gas is a compressible fluid are more important ultimately in the design of a pipe line than obtaining an accurate criterion for the coefficient of friction within the line.

"The conclusions based on representative pipe line tests throughout the United States, are that the Weymouth flow formula is sufficiently accurate for purposes of design and operation, and is the most practical for all ranges of size and condition of commercial pipe lines."

The study of the Bureau of Mines in co-operation with the American Gas Association has developed these principles and has also shown the advantages of maintaining clean pipes and the economic benefits of keeping the pressure drop at the minimum.

The value of the expansion of the natural gas industry during the last year, he says, has amounted to $500,000,000, 1,000-mile transmission lines have become a reality and some of these lines may deliver maximum peak loads of or exceeding 250,000,000 feet per day.

"In a study of the compressibility and viscosity of natural gas, determinations of 15 representative samples show the deviation from Boyle's law, using pressure as high as 1,000 pounds per square inch," the Secretary states. "It was found that the deviation is a function of the chemical composition of the gas; gases containing higher hydrocarbons deviate more than those having a high percentage of methane. The results obtained bear directly on estimating gas reserves by the pressure-drop method, whereas, it has been common practice to disregard

(Continued on Page 81)

THREE NEW OIL LINES IN MICHIGAN FIELD

MUSKEGON, Mich., Dec. 12.—Construction of a new independent oil pipe line in the eastern pool of the Mount Pleasant Field where several of the largest producers in the area recently have been brought in has been started by the Great Western Pipe Line Corp. G. P. Scharl, a Grand Rapids road contractor, and R. D. Smith of Muskegon are partners in the enterprise which will be incorporated with a capital of $100,000. About 12 miles of 2-inch pipe will be laid from the east pool, where there are now 20 large producers mostly owned by independent operators, to Shepherd, where loading racks will be erected. An immediate market for the oil has been obtained through a Canadian refinery, the name of which has not been announced. The line is expected to be completed about January 15.

Two other new pipe line projects also were reported this week in the Mount Pleasant area. The Peerless Oil Co. is said to have completed plans to lay a small sized line from the east pool to the village of St. Louis, a distance of about 14 miles, to speed up conveying of oil to different Michigan markets. An oil line to Leaton is to be taken up.

The White Star Refining Co. of Detroit also is reported to be surveying the Mount Pleasant area with the idea of laying pipe lines to move some of the production.

Mr. Smith, vice president and general manager of the Great Western Pipe Line Corp., was instrumental in forming the Independent Pipe Line Co., which laid a line in the Muskegon Field which was followed by an increase in crude prices from 50 cents to $1.10 a barrel within a few months.

FIRST LINE TO MARKHAM HAS BEEN COMPLETED

HOUSTON, Tex., Dec. 14.—The Texas Pipe Line Co. the past week completed and put in operation its new 4-inch line from the Markham Field, Matagorda County, to West Columbia, where it connects with the company's main line to Houston. The new line, which has a capacity of 2,100 bbls. daily, is Markham's first pipe line outlet although the field has been producing since 1917. Oil previously has been moved by tank car from loading racks at Bay City.

ARCHER COUNTY EXTENSION

FORT WORTH, Tex., Dec. 14.—The Gulf Pipe Line Co. will begin at once the extending of its main line in Archer County to connect with the Deep Oil Development and Lindsay wells in the Chalk Hill Pool. Rumors that the Gulf company has contracted to purchase the output of the wells in the pool were confirmed by Harry Hines, general manager of the Deep Oil Development and Lindsay interests.

PIPE LINES LAID IN IOWA

DES MOINES, Iowa, Dec. 12.—During the last two years 1,732 miles of gasoline and natural gas pipe line have been laid in Iowa, according to the chairman of the Board of Railroad Commissioners, Fred P. Woodruff.

Natural gas lines in the State measure 1,233 miles and gasoline lines 499 miles, he stated. Permit fees and taxes on these properties amount to about $23,000 a year, Mr. Woodruff said.

Seasons greetings
FRICK-REID

Oklahoma's Production Again Reduced

Completion of Potential Tests Brings Output Below Allowable. Plan Afoot for Restriction to 500,000 Bbls. a Day

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The proposal to reduce Oklahoma's daily average production to 500,000 bbls. a day is being discussed. The allowable would be reduced approximately 45,000 bbls. a day. A petition asking the reduction may be presented to the Oklahoma Corporation Commission immediately. It is believed the reduction would apply to the Greater Seminole and the Oklahoma City Fields only. The State's daily average production for the week ending December 12 was approximately 538,250 bbls. a day, which was 16,000 bbls. per day less than in the previous week. The decline was mostly in the Greater Seminole area, where the special potential tests were completed about a week ago.

The Oklahoma Corporation Commission was in session the latter part of the week hearing recommended changes in the rules regulating gas-oil ratios in the Oklahoma City Field. A committee of eight engineers and geologists submitted six rules tending to conserve both oil and gas. These recommendations are published in full elsewhere in this edition.

The committee consisted of M. J. Kirwan, Indian Territory Illuminating Oil Co., chairman; R. W. Brauchli, Anderson-Prichard Corp.; R. L. Clifton, Champlin Refining Co.; E. F. Guidinger, Phillips Petroleum Co.; E. J. McKee, Wirt Franklin Petroleum Corp.; J. R. McWilliams, Skelly Oil Co.; H. S. Thomas, Tom Slick Oil Co. and John E. Van Dall, Sinclair Oil & Gas Co.

Asking New Potentials

The Oklahoma Corporation Commission has taken under advisement the cases wherein new potentials have been asked on wells by four different operators in the field. Oils, Inc., asked that a potential be fixed and that the company be allowed to produce to make up underproduction on its No. 1 Ross in Section 2-11-3w in the north end of the field at the rate of 50 per cent a day of its allowable. It has been charged that the well is several hundred thousand barrels overproduced.

Hall-Briscoe, Inc.'s No. 1 Grace is seeking a new potential gauge for its No. 1 Grace and the Plains Petroleum Co. for its No. 1 Sadler, both being overproduced. The Continental Oil Co.'s Nos. 1 and 5 Sudik, in Cleveland County, in the extreme south end of the field are gas and oil producers making a considerable amount of water, and the company is asking for new potential tests.

New Producing Wells

The weather has delayed operations in the Oklahoma City Field during the week. The Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 2 Egermier, NW cor. SW SW, Section 23-11-3w, on the west edge of the field, flowed 256 bbls. of oil the first hour and a like amount the second hour from the Wilcox sand at 6,412-6,500 feet through a 5-inch choke. The gas was estimated at 24,000,000 feet a day. The production from the well was a disappointment to the operators as No. 1 Egermier, which is a quarter mile south, has a potential of 29,100 bbls. a day, and the other three offsets to No. 1 Egermier all averaged around 1,100 bbls. of oil an hour when completed. Some geologists are of the opinion that the Wilcox sand may be narrow on the west part of the field, maybe a half mile or less wide and extending in a northwesterly and southeasterly direction.

During the week recent completions were given potential tests. Anderson-Prichard Oil Corp. and Plains Petroleum Co.'s No. 1 Little, NW cor. SE NE, Section 10-11-3w, which was completed about a month ago, was given its initial production test, flowing 1,522 bbls. of oil in 6½ hours, before cutting the connections and being then shut in. The gas was estimated at 115,000,000 feet a day. It was produced through a 4-inch choke. The pay was found at 6,312-89 feet. When the well was completed it flowed 367 bbls. of oil in 37 minutes and made an estimated 231,000,000 feet of gas a day.

Anderson & Kerr and others' No. 1 Shields, NE cor. SE SW, Section 15-11-3w, also a recent completion, made 1,761 bbls. of oil in 2 hours before being forced to shut in. The gas was estimated at 20,000,000 feet a day. When the well was first completed a leak developed near the lower master gate and the well was shut in. The Wilcox sand was found at 6,482-6,551 feet.

Division of Oil Properties

A division of oil properties purchased by Kessler Oil & Gas Co. from Hall & Briscoe, Inc., about a year ago, was announced during the week. Kessler Oil & Gas Co. purchased a half interest in producing and some nonproducing properties in a $1,900,000 transaction. It was one of the largest deals yet made in the Oklahoma City Field.

Producing properties will remain the same except two leases. The present operations on No. 1 Mueller, will be under the direction of Hall-Briscoe, Inc., while Kessler Oil & Gas Co. will operate No. 1 Grace. Each of these wells is located on a city block. Nonproducing leases were divided, each taking an alternate block, based equally on an acreage basis. Joint management was terminated, Powell Briscoe, of Hall & Briscoe is expected to shortly announce a change in the company's name. F. C. Hall, the other member has joined the Kessler Oil & Gas Co. as a vice president.

Potentials and Stocks

During the month of November the crude oil in storage in the Oklahoma City Field increased only 37,423 bbls. to a total of 567,132 bbls. on December 1. A complete report of the field shows that for the month of November the total production was 5,339,679 bbls. and the pipe line shipments totaled 5,273,253 bbls.

The following report shows that 63 companies had a potential based on Corporation Commission's estimate, of 3,018,956 bbls. in one day from 815 wells, as follows:

Company—	Wells	Corp. com. potential	Stocks Dec. 1
Anderson-Prichard	27	115,498	29,052
Acme	1	17,255	4,588
Addition	1	19,216	6,072
Anderson-Kerr	1	10,907	970
American	1	13,047	284
Argood	1	96	1,054
Blackstock	1	1,774	1,322
Blackwell	5	20,586	4,340
British-American	9	86,631	4,874
California	1	....	184
Capitol P. & R.	2	17,181	7,845
Capitol Prod. Trust.	1	13,052	871
Century	5	31,912	8,999
Champlin	10	31,270	9,444
Chatham	2	28,264	1,526
Coline	34	18,364	12,62
Continental	5	9,444	8,18
Courter	1	5,607	24
Cromwell-Franklin	33	86,861	9,07
Dabney-Johnson	1	4,260	58
Danciger	1	10,279	16
Denver	7	51,973	10,29
Dengail	4	19,842	3,18
Donleon	3	27,768	89
Eason	3	28,499	10,43
Empire	3	399	9,51
Franco-Dominon	1	12,506	1,90
Wirt Franklin	39	73,602	25,67
Great Southern	1	5,941	5,75
Hall-Briscoe	2	2,079	1,42
I. T. I. O.	292	513,224	160,44
Kedberg	1	474	46
Mabee	1	48,274	4,05
Marco	1	....	24
Marshall	2	8,698	1,09
McArthur	2	27,402	1,82
Mid-Kansas	7	6,287	6,93
E. S. Holman	1	3,352	82
Minnehoma	1	18,886	74
Morgan	3	32,559	4,84
Ocate	1	....	1,30
Oils, Inc.	4	32,436	1,46
Paine Johnson	1	10,853	1,63
J. H. Peacock	3	2,981	3,74
Phillips	55	559,202	56,87
Plains	2	1,310	77
Prairie	14	11,642	2,41
Rajah, Inc.	1	14,569	1,67
Reynolds & Unruh	1	8,254	2
Russell	2	21,122	4,52
Scott	1	223	11
J. C. Shaffer	6	30,589	4,33
Shell	8	3,708	92
Sinclair	54	92,250	19,61
Skelly	22	101,301	5,53
Slick-Urschel	96	465,815	72,00
Springrose	2	13,019	2,15
Stauffer	1	....	....
Sunray	4	54,366	16,63
Watchorn	1	15,341	99
Westgate	6	84,460	3,64
Wilcox	10	70,340	4,60
Wrightsmith	2	2,882	56
Total	815	3,018,956	567,12

Activity in New Pool

The area known as the Fish Pool along the boundary lines of Seminole and Hughes Counties, is expected to be active during the coming months. The Empire Oil & Refining Co. expects to drill a number of tests in Section 19, 20 and 30-7-8, and the Burke-Greis Oil Co., which has considerable acreage in the same sections, may drill. It is estimated that approximately 20 tests will be drilled during the winter. Locations are being made for some of these tests and plans for the others are getting under way. On the last potential gauge the field had a daily potential of 7,000 bbls. with an allowable of 1,500 bbls.

The following operations were in progress in the field: Winona Oil & Gas Co.'s No. 1 in Section 30-7-8, was drilling at 2,600 feet. The Texas Company's No. 1 Eliza Fish, in Section 19-7-8, is an old gas well being drilled deeper. Burke-Greis Oil Co.'s No. 1 in Section 20-7-8 was drilling at 1,850 feet. Mid-Continent Petroleum Corp.'s No. 1 in Section 9-7-8 was rebuilding the rig. The total depth is 2,760 feet. Producers & Refiners Corp.'s No. 1 in the SW cor. Section 9-7-8 is a location. Gypsy Oil Co.'s No. 1 in the SW cor. Section 9-7-8 is a location.

Interesting Wildcats

Patterson and others' No. 1 McDuff, SW cor. NW SE Section 32-9-16, a wildcat in Pittsburg County, was drilling at 5,860 feet. The test had the Wilcox sand at 5,443 feet and the top of the Arbuckle lime at 5,680 feet.

In Hughes County the Gypsy Oil Co.'s No. 2 McNevins, SE cor. SW Section 5-8-9, found the top of the Wapanucka lime at 3,225 feet, and landed the 8-inch casing at 3,230 feet and is shut down waiting for the cement.

In Okfuskee County, Prairie Oil & Gas Co.'s No. 1 Wind, NW cor. SE Section 36-11-9, was an old gas well completed for 5,000,000 feet of gas a day from a total depth of 3,075 feet, will be drilled to the Wilcox sand. It was cleaning out.

In the Cary Pool, in Okfuskee County, Burke-Greis Oil Co.'s No. 1 Grayson, NE

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WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Brothers' No. 1 Forbes, SE cor. NW NW, Sec. 12-27-11w ..... S.D. 1,232 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w .. S.D. 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW Sec. 31-1-13 ..... Rig.

Edgerton Edwards' No. 2 Rowland, SE NE NW Sec. 6-1-15 ..... Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w .. T.D. 2,344 ft; plugged back to 1,890-1,900 ft; 1,500,000 ft. gas.

Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w .. Waiting on cmt. to set 430 ft.

Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w ..... S.D. 3,550 ft.

White et al's No. 1 Green, SW cor. Sec. 34-10-24w ... S.D. 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w ..... S.D. 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 3 Houston, Sec. 24-6-13w .... S.D. 1,115 ft.

CHEROKEE COUNTY

La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21 .. S.D. 1,196 ft.

CLEVELAND COUNTY

Schemerhorn et al's No. 1 Bourland, NE NW SW, Sec. 1-6-1 ..... Rig.

COAL COUNTY

Radial Oil Co.'s No. 1 McGraw, NE NW Sec. 2-1s-8 .... Drlg. 1,202 ft.

McCraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8 .... Drlg. plug; showing 2,000,000 ft. gas 1,765-1,846 ft; mudded off gas; S.D.; rig moved.

Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8 ..... S.D. 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w .... S.D. 1,450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w .. S.D. 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w .. S.D. 4,820 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-22w ..... 5,000,000 ft. gas 1,455-65 ft; T.D 1,760 ft.

French's No. 1 Murphy, SW NW Sec. 23-7-21w ..... S.D. 1,645 ft.

HARPER COUNTY

Sinclair O. & G. Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w ..... 20,000,000 ft. gas 5,356-5,400 ft; T.D. 5,539 ft; S.D; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE, Sec. 14-9-19.. S.D. 650 ft.

Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19 ..... S.D. 2,000 ft.

Ault et al's No. 1 Hall, SE NW, Sec. 25-19-9 ..... S.D. 200 ft.

Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e ..... S.D. 1,850 ft.

Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e.. S.D. 2,387 ft

KAY COUNTY

W. H. Atkinson et al's No. 1 Hayes, SE NE, Sec. 24-28-3.. Spudding.

Lewis et al's No. 1 Harris, SE NW, Sec. 14-28-1 ..... Location.

Mummert Drgl. Co. et al's No. 1 Cormick, C NW SE, Sec. 9-27-2 ..... S.D. 2,693 ft.

Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w ..... Rig on ground.

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You can blend Dubbs cracked gasoline with straight-run and make a salable motor fuel but that's no argument for the crude stills

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Effort to Develop Ellsworth Arch Field With One Well to Each 40 Acres Held Up by Protests of Landowners

By W. A. Spinney
Staff Correspondent, Kansas Fields

Kansas daily production has been little changed for several weeks. For the week ending December 12, the daily average was approximately 104,950 bbls., a difference of only 150 bbls. from the previous week. According to L. R. Pickrell, field umpire and agent of the Public Service Commission, the Ritz-Canton-Decker Field has a potential of 104,419 bbls. a day from 116 wells, which is approximately the amount the entire State is making. The field's chat wells are capable of yielding 37,967 bbls. of oil a day and the Viola lime wells have a combined potential of 66,462 bbls. a day. The daily allowable production from the area is limited to 17,500 bbls. a day.

The Kansas Public Service Commission has abandoned its efforts to limit drilling to one well on each 40 acres in Ellsworth, Rice, Barton and Stafford Counties, because of the disapproval of the landowners. With the majority of the landowners opposing the order together with some of the oil companies, the members of the commission, after the two-day hearing on December 10 and 11, announced that no action would be taken to put in force a permanent order.

The first temporary order, issued November 3, expired December 10, and one of the commission's members said that the question would be taken under advisement. The chairman of the commission said he doubted if the commission is endowed with authority to make and enforce such an order.

At the first meeting held December 10, at Lyons, only two witnesses were examined, J. H. Stewart, a petroleum engineer with the Atlantic Oil Producing Co., and J. Corchat, a petroleum engineer with the Mid-West Refining Co. They both said that the plan had never been tried but that in theory it was all that could be desired from a standpoint of conservation.

Derby Oil Co. is opposing the order and was granted a temporary injunction in Barton County district court, and later in the month a hearing will be held on which to base a decision to make the order a permanent one.

Landowners Protest

At Great Bend the hearing was attended by approximately 400 persons, a large majority being landowners, 90 per cent of whom were against the order. A representative of the Indian Territory Illuminating Oil Co. testified in favor of the plan. An engineer with the Barnsdall Oil Co. said that such a plan was neither feasible in practice nor theory, and that in the opinion of some engineers one well would not drain 40 acres successfully.

The area covering the four counties is believed to be one of the most attractive in the State at the present time. About a dozen wildcat wells have been completed inside of these counties with estimated production potentials of from 1,000 to 4,000 bbls. in 24 hours.

Landowners in the four counties were preparing to start court action against the commission's order limiting the drilling of one well to the center of each 40-acre tract, unless the order was rescinded. They cited flush pools in Sedgwick and McPherson Counties where operators were permitted to drill a well on each 10 acres.

Extend Production

New wells in Sedgwick County extend production and add another producing horizon to the county. Continental Oil Co.'s No. 1 Casey, SW cor., Section 15-25-1, in Goodrich Pool, was swabbing 660 bbls. of oil in 24 hours from the Kansas City lime, a new horizon for the field, at 2,614-16 feet. The pool now has three producing horizons, the chat, Viola lime, and Kansas City lime. The 8-inch casing was being landed on top of the pay formation preparatory to tubing and pumping the well. While swabbing the well the oil in the hole could not be lowered less than 700 feet off bottom. The hole was standing full of oil when the swabbing started. It is located about three-quarters of a mile east of the discovery well which was completed in that about three years ago. The same company's No. 2 Goodrich, in Section 16-25-1, was drilling at 3,320 feet. The company's No. 1 Black, in the same section was drilling at 2,905 feet.

In the Eastborough Pool, in Sedgwick County, the deep sand production was extended to the northeast into Section 17-27-2, when R. Ramsey and others' No. 2 Davies, SW cor., Section 12-27-2, found a showing of oil at 3,228 feet in the Viola lime and shut down to land the 6-inch casing. The well extends deep production in the pool, a quarter of a mile.

In Cowley County, McKnabb and others' No. 1 Branch, in Lot 4 of Kirkland Addition, of the city of Winfield, was an old producing well drilled deeper to 3,297-3,309 feet where it swabbed 20 bbls. of oil an hour. It may be drilled deeper.

Pipe Line Activity

Work is being rushed on the pipe lines and loading racks along the Ellsworth Arch, in Stafford, Barton, Rice and Ellsworth Counties, which will soon provide outlets for several important wildcat wells which have been shut in. The Stanolind Crude Oil Purchasing Co. has contracted for the oil from about half of the producing wells in the area.

The Stanolind Crude Oil Purchasing Co. has already made a connection and is handling the oil from Hilligoss and others' No. 1 Isern, in Section 12-20-11w, Barton County. Within approximately 10 days the same company expects to have its gathering line completed to Hinkle and others' No. 1 Sharpe, in Section 13-20-10w, Rice County, northeast of Raymond.

In the northwestern part of Rice County the Stanolind Crude Oil Purchasing Co. is preparing to connect the J. A. Alyward's No. 1 Stratman, in Section 1-17-10w. A loading rack is being erected 1½ miles east of Holyrood, on the railroad, which is being connected by a pipe line from the well. The same company is also preparing to take the production from Slick, Pryor and Lockhart's No. 1 Heiken, in Section 25-17-10w, about 3 miles southwest of the Alyward well.

A pipe line connection is expected to be made to the Derby Oil Co. and Aladdin Petroleum Corp.'s No. 1 Stoltenberg in Section 22-16-10w, Ellsworth County. A survey is being made for a 4-inch line.

No arrangement has yet been made to connect the Gypsy Oil Co. and Tom Palmer's No. 1 Stoltenberg in Section 22-16-10w, Ellsworth County.

In Rush County, the Stanolind Crude Oil Purchasing Co. has contracted to buy the oil produced from Dewey & Mitchell and others' No. 1 Greenwalt, in Section 17-19-16w. The owners of the well are building a pipe line and loading rack, which will be taken over by the Stanolind Crude Oil Purchasing Co. The loading rack is located at Shaffer, on the Santa Fe Railroad.

Another chat gas well was completed in the Ritz-Canton Field and it will be used as fuel to develop the other locations on the lease. Abilene Oil Co.'s No. 1 Lewis, SE cor., Section 30-19-1w, was completed for 4,000,000 feet of gas a day from the chat at 2,939-43 feet.

Dickey Oil Co.'s No. 2 Decker, NW cor. SW SE, Section 35-19-2w, is a new location offsetting to the east the new chat well of Rosenthal and others' No. 1 Deilman. No test has been made of the production of No. 1 Deilman but early estimate placed it at 300 bbls. an hour. Tanks and a pipe line connection are under construction.

In Ritz-Canton Field

In a recent survey of the Ritz-Canton-Decker Field it was found that 19 locations have been made that are as yet undrilled. The locations are as follows: Darby Petroleum Co.'s No. 4 Fletcher, SE cor. SW, Section 16-19-1w; Alexander and others' No. 1 Fletcher, SE cor. NW, Section 16-19-1w; Blankenship and others' No. 1 Minear, Block 5, Lot 11, in Canton Township in Section 21-19-1w; Keyes Brothers' No. 1 Webster, SW cor. NE, Section 21-19-1w; McPherson Oil & Gas Co.'s No. 1 Russell, C NW NE, Section 23-19-2w; same company's No. 5 Fleming, C NW NW, Section 23-19-2w; Persinger & Frantz' No. 1 Brucker, NW cor. SW NW, Section 21-19-1w; Bradley Brothers' No. 1 Russell, SE cor. NE NE, Section 23-19-2w; all gas locations. The oil locations include General Petroleum Co.'s No. 1 Middleswart, NE cor., Section 21-19-1w; Abilene Oil Co.'s No. 4 Anderson, NW cor. NE NW, Section 36-19-1w; Lario Oil & Gas Co.'s No. 1 N. Law, NE cor., Section 24-19-2w; The Texas Company's No. 6 Munn, SE cor. NE, Section 12-20-2w; Vernon Oil & Gas Co.'s No. 2 Drum, NW cor. NE, Section 35-19-2w; same company's No. 1 Thomas, NE cor. SW, Section 26-19-2w; Foraker & Smith's No. 1 Hamilton, NW cor. SW NW, Section 28-19-1w; Derby Oil Co. and Empire Oil & Refining Co.'s No. 8 Domsch, SE cor. NE NW, Section 6-20-1w; Twin State Oil Co.'s No. 1 Farver, SW cor. SE SE, Section 16-20-1w; Shell Petroleum Corp.'s No. 1 Johnson, SE cor. SW SW, Section 35-19-3w; Washoma Petroleum Co.'s No. 2 Meeks, NE cor. SW, Section 7-20-1w.

The Shell Petroleum Corp.'s No. 1 Johnson, SE cor. SW SW, Section 35-19-3w, is a wildcat location. The rig is expected to be moved out in a few days. It will be drilled with a rotary unit.

Pickrell's Report

Umpire L. R. Pickrell, agent of the Public Service Commission, advises that the total potential production of the Ritz-Canton-Decker Pool is 104,419 bbls. a day on December 1. The commission orders that the chat wells be allowed to continue to produce 5,500 bbls. a day until January 1. A readjustment of the allowable production was made on several of the chat wells. Operators of chat wells other than those which receive the minimum allowance or a special adjusted allowable are therefore authorized to continue producing 13.2 per cent of their potential production daily until such time as additional chat wells may necessitate a further reduction.

By the order of the commission, the Viola lime wells are to be prorated to the remainder of the pipe line outlet until January 1, 1932, but the total field pipe line outlet is not to exceed 17,500 bbls. daily. Present nominations of the field are approximately 16,500 bbls. daily, allowing the Viola lime wells an outlet of 11,200 bbls. daily.

Producers of Viola lime wells were authorized to produce 19 per cent of their potential production from December 1 to 8 and from December 8 are authorized to produce 18 per cent of their potential production daily until such time as additional new wells or a change in the nominations of the purchasing companies requires a change in the allowable percentage.

In Kingman County

Skelly Oil Co.'s No. 1 Miles, NE cor. Section 30-27-10w, Kingman County, is flowing 300 bbls. of 38 gravity oil daily from the Lansing lime at 3,385-3,409 feet. The test is the only wildcat producing well in the county. It was completed January 1, 1931, and has been shut in. The oil is being shipped out to a loading rack and then sent in tank cars to the company's refinery at Eldorado, in Butler County.

The western and central western part of Kansas is being worked by geophysical parties since the finding of oil in wildcat tests has become the regular occurrence. Several geological and geophysical parties are working in Barton County. The work is in the neighborhood of the producing areas, as well as in wildcat districts. In Rice County work is under

(Continued on Page 66)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boretz, NW SE SE, Sec. 2-18-12w	S.D. 3,458 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	Show oil 3,225-28 ft.; drlg. 3,310 ft.
McCool et al's No. 1 Tsern, NW SE NE, Sec. 12-20-11w	Show oil 3,313-29 ft.; pumped 500 bbls. per day.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor., Sec. 19-8-3	S.D. 2,700 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW, Sec. 13-13-3	Drlg. 4,600 ft.
ELLSWORTH COUNTY	
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 1 hrs.; shut in; estimated 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW, Sec. 22-16-10w	Silicious lime 3,332-47 ft.; estimated 1,500 bbls. a day; shut in.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, C SW, Sec. 13-23-30w	S.W. 2,100 ft.
HARVEY COUNTY	
Liggett et al's No. 1 Davis, SW SE NE, Sec. 7-24-1	S.D. 1,505 ft.
J. P. Flannigan's No. 1 Sheridan, C SW, Sec. 32-22-1	T.D. 4,102 ft.; abandoned.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor., Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 1,133-42 ft., 3,000,000 ft. gas; showing oil 3,385 ft.; T.D. 3,441 ft.; S.D. estimated at 600 bbls. a day.
Panhandle Drlg. Co.'s No. 1 Wetherall, C SE NW SW, Sec. 20-28-10w	Rig.
McPHERSON COUNTY	
Twin Drlg. Co.'s No. 1 Farver, SW SE, Sec. 16-20-1w	Location.
Shell Pet. Corp.'s No. 1 Johnson, SE SW SW, Sec. 35-19-3w	Rig on ground.

Merry Christmas

... anyhow

GUIBERSON

BETTER BE SAFE THAN SORRY — GUIBERSON

DALLAS, TEXAS

New Shallow Gas Field in Natchitoches

North Louisiana Wildcat Blows in from 585 Feet. Rhodessa Field Has Best Gas Well of Week. Bethany Lease Transferred

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Dec. 14.—A wildcat that is causing quite a ripple of interest in North Louisiana is Dr. H. S. Gerson's No. 1 Smith, Section 11-10-8, in the northwestern part of Natchitoches Parish, near the south lines of De Soto and Red River Parishes. The test blew in unexpectedly Friday with part of the drill stem in the hole with an estimated flow of 4,000,000 feet of gas from the shallow depth of 585 feet. The well is blowing wild, uncontrolled, with only 90 feet of 12½-inch surface casing in the hole. It is also making large quantities of salt water, estimated from 5,000 to 7,500 bbls. daily. Doctor Gerson, owner of the well and a large block of 14,000 acres surrounding it, states that 61 feet of sand had been cored from 524-85 feet when the blow-out occurred. The gas is evidently coming from the Nacatoch sand which produces oil in the Bellevue Field around 400 feet, and gas in the Elm Grove Field from the 900-foot level. The Bellevue and Elm Grove Fields are in Bossier Parish, about 75 and 55 miles north of the Natchitoches wildcat, and the Crichton and Bull Bayou oil fields are from 15 to 20 miles north.

Previous tests in this part of Natchitoches Parish have indicated that the Nacatoch formation is encountered around 1,000 feet. Nichols & Wilder's No. 1 Clark in Section 10, adjoining did not report a good show at the shallow depths and the test was abandoned in salt water at 2,820 feet. H. O. Readheimer drilled wildcats in Section 3 and 10-11-8, that had shows of gas from 1,000 to 1,500 feet but not in commercial quantities. The well is 1½ miles northeast of the village of Powhatan and 10 miles north of Natchitoches, the parish seat. An effort will be made to kill the wild gasser and another test started in the immediate vicinity. With the test located on a high dome of the Nacatoch sand, there is every indication that a new shallow gas field will be developed in North Louisiana.

Rhodessa Has Best Well

The best completion for the week in this division was the United Gas Public Service Co.'s No. 1 H. J. Bussa, Section 33-23-16, in the Rhodessa Field of Northwest Caddo Parish. The well is the seventh consecutive gasser from this area, including the discovery well, and gauged 54,618,590 feet of highly saturated gas from a total depth of 5,590 feet. The rock pressure registered 2,150 pounds, with the gasoline content of the gas running around 2,000 gallons per million feet. The production is coming from Oolitic lime with streaks of sand from the Trinity horizon. The latest producer is within the proven limits, less than one-half mile east and south of the same company's No. 1 Smith, which was completed with the lowest initial flow of any of the seven tests, gauging less than 4,000,000 feet from a total depth of 5,690 feet, the deepest well in the field. There is a difference of only 8 feet in the surface elevations of the Smith and Bussa wells, with the smaller production of the former coming from a total depth 100 feet lower. This indicates that the Smith well is on the northern boundary of a structure running northeast and southwest. None of the other wells would indicate an extremity in any other direction, as No. 1 Emmons, Section 27-23-16, one-half mile northeast, had an initial flow of 38,516,000 feet with 2,330 pounds of rock pressure from 5,570 feet, and No. 1 Fortner, Section 5-22-16, which is about 2 miles southwest, was completed from a total depth of 5,591 feet gauging 30,000,000 feet of wet gas. This makes the proven producing area to date 2½ miles long from southwest to northeast and about one-half mile wide.

Operations in the Rhodessa area were first started by the Ohio Oil Co. in 1927. This company drilled No. 1 Fortner, previously mentioned as completed later by the present operators, to 3,072 feet where the test was temporarily abandoned. In 1929, R. W. Norton and others acquired a block of acreage, including the Fortner test, and drilled it to 5,002 feet, abandoning it on August 1. On August 21, these operators spudded in their No. 1 Hill, 2 miles northeast in Section 33-23-16, which was completed August 6, 1930, with an initial flow of 11,242,000 feet of gas from 5,506 feet. After completing this discovery well, Norton and others sold their interest to the United Gas Public Service Co., a subsidiary of Electric Bond & Share, which company has since developed the field. Although no gas has been run from the Rhodessa Field to date, it is looked upon as one of the two most important gas areas in this district, Sugar Creek, another Trinity producing field in Claiborne Parish, being the other one. The production, coming from the Trinity horizon, has an immense initial flow with a gasoline content averaging 2,000 gallons per million feet, and a rock pressure of over 2,000 pounds which indicates long life production.

Completions

Each of four states registered one successful completion during the week with Arkansas furnishing the only oil well, and Panola County, East Texas, and the Jackson Field in Mississippi reporting gassers. In Ouachita County, Arkansas, the M.S.M. Oil Co.'s No. 4 Arnold & Doyle, Section 23-16-15, was completed pumping 50 bbls. from 2,093 feet. In the Bethany Field of Panola County, East Texas, the Natural Gas Production Co.'s No. 8 Floyd, B. C. Jordan Survey, had an initial flow of 10,000,000 feet of dry gas from 2,606 feet. The Jackson Field in Mississippi continued its consistency with the completion of Howie & Howie's No. 1 fee, Section 34-6n-1e, Hinds County, with an estimated flow of 10,000,000 feet of gas from 2,455 feet. Two wildcats were abandoned as dry holes in widely separated sections. In Bowie County, East Texas, west of Texarkana, Hindeman & Bell (was Maud-Redwater Oil Co.), abandoned their No. 1 Merritt, Y. S. McKinney Survey, at 3,465 feet. It is reported that the top of the Georgetown lime was encountered in this test at 3,411 feet. The other wildcat failure was in Warren County, Mississippi, the United Gas Public Service Co.'s No. 1 Tchula Co-operative Store, Section 33-15-3e, abandoned at Wilcox formation at 4,008 feet.

Daily Average Runs

The Zwolle Field of Sabine Parish declined 785 bbls. daily in average runs during the past week which was a greater portion of the 1,140-bbl. decrease for the fields of North Louisiana and Arkansas. Daily average runs for the several pools were:

North Louisiana	
Caddo light	5,9[illegible]
Caddo heavy	1,7[illegible]
Cotton Valley	2[illegible]
De Soto and Red River	2,11[illegible]
Elm Grove	2[illegible]
Haynesville	4,5[illegible]
Holly	2[illegible]
Homer	2,8[illegible]
Pleasant Hill	3[illegible]
Sarepta Carterville	8[illegible]
Urania	3,4[illegible]
Zwolle	4,7[illegible]
Total North Louisiana	27,5[illegible]
Total previous week	28,6[illegible]
Decrease	1,1[illegible]
Arkansas	
Champagnolle	2,1[illegible]
El Dorado	3,3[illegible]
Lisbon	[illegible]
Nevada	1,1[illegible]
Smackover light	3,1[illegible]
Smackover heavy	25,5[illegible]
Stephens	4[illegible]
Urbana	8[illegible]
Total Arkansas	37,4[illegible]
Total previous week	37,4[illegible]
Decrease	[illegible]
Total both states	65,0[illegible]
Total previous week	66,1[illegible]
Decrease	1,1[illegible]

Bethany Transfer

A development of interest in the Bethany gas field of Panola County, East Texas, was the recording during the past week of the transfer of a large producing lease to be extensively drilled by the new owners. The Thomason Drilling Co., composed of D. Thomason and E. L. Holcomb of Shreveport, transferred 60 acres of the Crenshaw lease, together

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WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks:
Arcadia Drlg. Co.'s No. 1 Mason, Sec. 28-18-6, 1,200 ft. W, 190 ft. N, SE cor. NE NW	S.D. 2,251 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 350 ft. W, C, Sec. 15-23-14	S.D. 2,390 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	S.D. 1,710 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11	S.D. 1,004 ft.

CADDO PARISH

D. C. R. Oil Co.'s No. 1 Oden account 5, Sec. 18-19-14, 430 ft. W, 330 ft. S, NE cor. SE	Drlg. 3,200 ft.

CALDWELL COUNTY

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	S.D. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-3e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMillen, 70 ft. N, 100 ft. W, C, Sec. 26-9-4	T.A. 3,097 ft.

DE SOTO PARISH

E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15	S.D. 3,028 ft.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16	S.D. 1,965 ft.
A. R. Smith's No. 1 Horn, Sec. 15-12-16, NE cor. Sec.	Rigging up.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 2-11-13	S.D. 1,366 ft.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 2 Sandidge, Sec. 11-20n-4e, 656 ft. S, 1,332 ft. W NE cor NW	Set 9-in. 862 ft; drlg. 1,186 ft.

NATCHITOCHES PARISH

Dr. H. S. Gerson, No. 1 Smith, Sec. 11-10-8, 2,000 ft. N of NE cor of irregular Sec. 10 in Sec. 11	S.D. 50 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10	S.D. 1,515 ft.
R. A. Keaton's No. 1 Stephens, Sec. 25-10-6, 320 ft. N and W, SE cor. NW NW	S.D. 178 ft.
Mid-West Prod. Co., Inc.'s No. 1 H. Brown, Sec. 34-11-10, 200 ft. W, 330 ft. S, NE cor. SE	S.D. 1,185 ft.

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LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	S.D. 2,275 ft.

CADDO PARISH—RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 33-23-16, 990 ft. W and 660 ft. S of NE cor.	Completed for 54,618,590 ft. gas 5,590 ft.

CLAIBORNE—SUGAR CREEK AREA

United Gas Public Service Co.'s No. 1 Dobbins, Sec. 12-19-6e, 1,186 ft. W, 700 ft. S, NE cor. Sec.	Drlg. chalk 2,453 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.

OUACHITA PARISH

Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N and 7,475 ft. W of cors. of Secs. 25, 26 and 49, in Sec. 50	Location.

RICHLAND PARISH

United Gas Public Service Co.'s No. 1-B Colvin, Sec. 34-17-6, 657 ft. S, 754 ft. E, NW cor.	Set 9-in. 885 ft.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,440 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6	Set 6-in. 2,280 ft.
Southern Carbon Co.'s No. 8 Rosengraut & Ducomb, 2,546 ft. E, 660 ft. N, SW cor., Sec. 18-17-6e	Drlg. plug. 2,285 ft.
United Gas Public Service Co.'s No. 14 Rhymes England, Sec. 32-17-6e, 992 ft. N, 663 ft. W, SE cor. section	Set 6⅝-in. 2,300 ft.

SABINE PARISH—ZOWLLE

Coates Petroleum Co.'s No. 1 Hale, Sec. 1-7-12	Testing 2,425 ft.
Crescent Drilling Co.'s No. 2 McCormick, Sec. 2-7-11	Derrick.
Lyons & Neely's No 1 McClanahan, Sec. 14-7-11, SE cor SE NW	Rigging up.
W. F. Lacy's No. 1 Holliday, Sec. 35-8-12, 330 ft. N and E, SW cor. SE NW	Testing 2,520 ft.
Ohio Oil Co.'s No. 13 Bowman-Hicks, Sec. 35-8-12, 2,310 ft. N, 525 ft. W, SE cor. Sec.	Drlg. 2,352 ft.
Pelican Nat. Gas Co.'s No. 11 Louisiana Long Leaf Lbr. Co., Sec. 10-7-11, 330 ft. N and W, SE cor. NE NW	Drlg. 2,450 ft.

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Open New Field in Montgomery County

Marianna Wildcat Indicates Possibility of Field of Large Extent. North Flank of Blue Ridge Extended. New East Hackberry Well

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Dec. 14.—With indications that it is the forerunner of an important new field G. W. Strake and associates' No. 1 South Texas Development Co., a rank wildcat in Montgomery County, was brought in late Sunday night as a gas well. Lease and royalty buyers, who have been watching the well closely for the past two weeks, ever since showings of oil and gas

first were reported, already have been active in that territory and a play not witnessed on the Gulf Coast in several years is anticipated.

The well is producing from what is reported as the Jackson with bottom of the hole at a total depth of 4,991 feet, where 7 feet and 7 inches of 5-⅛-inch screen and 87 feet and 5 inches of 4¾-inch blank were set after drilling out the 7-inch casing plug at 4,931 feet. The well was washed in on a three-eighths inch choke and started blowing an estimated 15,000,000 to 20,000,000 feet of gas. Monday it was placed on a three-sixteenths inch choke and was making the same amount of gas and showing a pressure of 50 pounds on the separator.

While at present a gas well, it has a strong odor of petroleum and operators are of the opinion that as soon as pressure declines the well will start making oil. There is no trace of water. One 750-bbl. and two 500-bbl. tanks have been set up.

Considerable trading is reported to have been done in that area. This has been largely by independents. Strake and associates themselves have between 8,000 and 9,000 acres almost solid around the Theodore Slade Survey, in which the test is located. Exact location of the wildcat is 468 feet in a westerly direction along the north line of the Slade survey from the southwest corner of the A. McCowan Survey and thence 750 feet southeasterly at right angles. This is approximately 3 miles to the southeast of Conroe.

This is the first production in Montgomery County, which lies just north of the coastal salt dome district. Several areas, however, in the country have been looked upon as being promising. No extensive wildcatting has been done, only occasional tests being drilled. Several of the majors hold large blocks, on one of which an interesting deep test was abandoned the past week, Humble Oil & Refining Co.'s No. 1 Renn, in the S. J. McFarland Survey, southwestern part of the county. This test, which was dry in shale at 5,420 feet, was the first drilled in what is known as the Magnolia block.

Montgomery is one of a group of a half dozen counties located between the Gulf Coast proper and the counties comprising the East Texas district, and is rank virgin territory. Geologically, comparatively little is developed in the district, but several very well defined structural highs are known to extend through those counties. The Strake well is on the south flank of what is believed to be the convergence of two highs extending easterly from Conroe, the county seat of Montgomery County.

Marianna Test

Another coastal wildcat also was in the spotlight at the close of the week following a drill stem test which gave promise of still more new production. This was The Texas Company's No. 3 McFaddin, John M. Rine Survey, in the Marianna district of southwestern Victoria County, lower coastal country. In a drill stem test of a sand topped at 5,827 feet and drilled into to 5,832 feet, fluid rose 42 feet in two minutes. The fluid was high gravity clean oil. At latest report casing was being run.

This well is approximately 3 miles to the northeast of Humble Oil & Refining Co.'s wildcat producer on the O'Connor ranch, John Keating Survey, in northern Refugio County. The latter was brought in December 3 in a sand at 4,127-55 feet and flowed at the rate of between 80 and 90 bbls. for the eight hours it was allowed to flow. The Texas Company's well tested salt water in that sand.

The showings in The Texas Company's well add further proof for the belief that a field of large extent exists in that territory, possibly extending from at least the Humble well on the south to United Production Corp.'s McFaddin gas field, 3½ miles east of The Texas Company's well, on the east and to Slick estate's No. 1 McFaddin, a wildcat gas well, 3 miles to the north of the United gas wells.

The Texas Company's No. 3 McFaddin is 2,675 feet north and 30 degrees west of No. 2 McFaddin, which early in the year was completed as a high pressure gas well with bottom of hole at 2,025 feet. No. 3 encountered numerous sands and could have been made a gas well in any one of several of the sands but it was started as a deep test in search for oil.

Humble's O'Connor well has been standing shut in for storage. It was opened for a while on an eleven-thirty-seconds inch choke and flowed at the rate of 5 bbls. an hour, showing 1,500 pounds working pressure on the casing and 300 pounds on the tubing. Shut in the well has a pressure of 1,700 pounds.

Blue Ridge Extension

Production on the north flank of Blue Ridge was extended 500 feet northward out from the dome with the completion of Coronado Oil Co.'s No. 2 Blakely. This well, with 35 feet of 4¾-inch screen set at 4,397 feet, came in flowing at the rate of 30 bbls. an hour through a three-eighths inch choke. This is the second well drilled by the same group of operators. The first well was drilled as Doney & Mean's No. 1. Blakely and completed early this year. These wells are on a block of approximately 3,500 acres, located around the north and northeast sides of the dome and comprising most of the Blakely ranch, formerly owned by the Gulf Production Co.

Flush production of the new north extension pool on the East Hackberry Dome, Cameron Parish, Louisiana, was given another boost with the completion of Yount Lee Oil Co.'s No. 47 State, which came in flowing 1,900 bbls. of pipe line oil daily taking in sand at 2,973-99 feet. This is one of a series of good wells which have been brought in in that pool, opened several months ago.

Abandonments

Among abandonments of the week were Humble Oil & Refining Co.'s No. 1 Nelson, first test drilled upon what is known as the Cheek geophysical prospect, in central Jefferson County and about 10 miles southwest of Spindletop. This test, drilled on a block jointly owned by Humble, Gulf Production Co. and Shell Petroleum Corp., was in shale at 6,537 feet. It failed to find any showings or indications of a dome.

At Sorrento, Ascension Parish, Louisiana, Gulf Refining Co. has quit its No. 20 United Land Co. in cap rock at 4,909-44 feet. This test is 290 feet north and 400 feet west of No. 19, flank sand discovery well, completed several months ago as a 300-bbl. well in sand at 4,345-51 feet after plugging back from salt at 4,848-70 feet. No. 20 had a slight showing in the cap. Both wells are on the northeast side of the dome.

Standard Oil Co. of Louisiana has junked its No. 6 Schwing, deep test at Bayou Blue, Iberville Parish, Louisiana, with drill stem stuck at a total depth of 6,103 feet. The Texas Company's No. 2 L.L.&E., Bay Junop, Terrebonne Parish, has been abandoned as dry at 6,570 feet.

Mykawa District

Humble Oil & Refining Co. has just made known it is giving up its acreage in the Mykawa district, south of Houston, and is assigning its block, with the exception of 5 acres around each of two producing wells, back to H. C. Cockburn, discoverer of the prospect. The two wells are No. 1 Gehring, which has been making between 65 and 70 bbls., and No. 3 Minnetex, producing around 135 bbls. Humble has drilled nine tests at Mykawa. In addition to No. 3 Minnetex and No. 1 Gehring, short-lived production has been obtained in two others of the nine while several additional has had showings. Mykawa is a torsion balance prospect discovered during 1928.

The Texas Company's No. 3 L.L.&E., Leesville, LaFourche Parish, is preparing to test sand showing oil at 3,624-35 feet. This test is 237 feet west and 43 feet south of No. 2, the discovery well, which now is producing from the same sand at 3,665-89 feet. In Terrebonne Parish, Louisiana Gas & Fuel Co. (United Gas Public Service Corp.) is preparing to test its No. 2 Minor, Section 3-18s-16e. This well, in sand topped at 3,878 and drilled into 3,882 feet, recently made a drill stem test showing for

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GULF COAST FIELDS AND WILDCATS

Week ending December 12
All Rotary

Company, farm and location—	Remarks—
BARBERS HILL—CHAMBERS COUNTY	
Mills Bennett Prod. Co.'s No. 1 Gulf fee, Henry Griffith League, 50 ft. out of NE cor., Strip 15	Set 107 ft. of 2-in. screen 5,134 ft.
Mills Bennett Prod. Co.'s No. 6 Wilburn, Henry Griffith League, 125 ft. W of No. 5 in center of tract	Coring sandy shale 3,667 ft.
Mills Bennett Prod. Co.'s No. 5 Gulf-Fisher, Wm. Hodges Sur., 75 ft. from N line, 191 ft. W of No. 4	Drlg. salt 1,617 ft.; top of salt 1,480 ft.
R. E. Ferrell's No. 2 Wilburn, Henry Griffith League, 215 ft. W of No. 1 in center of 45-acre tract	Drlg. hard handy lime 1,831 ft.
Gulf Prod. Co.'s No. 6 Wilburn, Henry Griffith League, 50 ft. from S line of lease and 400 ft. W of No. 3	Sandy shale showing oil 4,421-71 ft.; cem. 7-in. casing.
McAlbert Oil Co.'s No. 1 Wilburn (D.D.), Henry Griffith League	Cutting and pulling screen to deepen 5,132 ft.
Nat Hunter Prod. Co.'s No. 1 S. E. Morgan, 225 ft. N of S line in center of Strip 2 (4.4 acres), Henry Griffith League	Drlg. salt 3,710 ft.; top 1,376 ft.
Nat Hunter Prod. Co.'s No. 1 J. M. Fitzgerald, Henry Griffith League, 75 ft. from W line and 125 ft. from S line of tract	Drlg. broken lime 972 ft.
Nat Hunter Prod. Co.'s No. 2 Ilfrey (W.O.), Henry Griffith League, 250 ft. from E line and 30 ft. from N line	Rig up to deepen 5,087 ft.
Sinclair Oil & Gas Co.'s No. 9 Wilburn, Wm. Hodges Sur., 50 ft. N of S line and 550 ft. W of No. 6	Drlg. sticky shale 2,975 ft.
Sinclair Oil & Gas Co.'s No. 10 Wilburn, Wm. Hodges Sur., 50 ft. S line, 100 ft. W of No. 9	Drlg. salt 2,455 ft.; top of salt 1,437 ft.
Sinclair Oil & Gas Co.'s No. 11 Wilburn, Wm. Hodges Sur., 125 ft. W of No. 8 and 45 ft. S of N line	Drlg. salt 1,515 ft.; top of salt 1,423 ft.
Sun Oil Co.'s No. 2 Higgins, Wm. Bloodgood Sur., 1,095 ft. W of No. 1 and 50 ft. N of S line	Drlg. salt 1,970 ft.; top of salt 1,424 ft.
Sun Oil Co.'s No. 12 Wilburn, Wm. Hodges Sur., 50 ft. from N line and 75 ft. W of No. 11	Drlg. shale and lime 2,874 ft.
Sun Oil Co.'s No. 2 Winfree (W.O.), W. D. Smith Sur., 50 ft. from SW line and 150 ft. of S line	Cutting out screen 5,359 ft.
The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 412 ft. from N and S lines of strip	Pulled screen 4,425 ft.; drlg. deeper in sticky shale 4,497 ft.
The Texas Company's No. 8 Wilburn, Henry Griffith League, 25 ft. W of No. 5 and 50 ft. N of S line of tract	Derrick.
HUMBLE—HARRIS COUNTY	
Sun Oil Co.'s No. 25 Bender, W. B. Adams Sur., 1,155 ft. from C of R.R. on an extension of the N line of the Bender North Addition and 8 ft. S	Salt 3,268-98 ft.; plugged to 2,850 ft.; set 111 ft. of 4¾-in. screen; pumped water; temporarily abandoned.
Sun Oil Co.'s No. 26 Bender, W. B. Adams Sur., 310 ft. W. 20 deg. N of No. 25	Shale showing oil 3,349-3,484 ft.
The Texas Company's No. 37 Koehler, J. B. Stevenson Sur., 717 ft. E and 603 ft. S of NW cor. of SW fee tract	Total depth 3,866 ft.; drlg. sidetracked hole 3,220 ft.
The Texas Company's No. 46 Stevenson fee, 1,630 ft. N and 1,690 ft. W of SE cor. of J. B. Stevenson Sur.	Sandy shale showing oil 4,618 ft.; cem. 7-in. casing on bottom.
PORT NECHES—ORANGE COUNTY	
The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.	Drlg. shale 3,941 ft.
The Texas Company's No. 2 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2	Location.
BIG CREEK—FORT BEND COUNTY	
Gulf Prod. Co.'s No. 62 Davis, M. Young Sur., 400 ft. NE of No. 19 and 600 ft. SE of No. 57	Drlg. gumbo 3,443 ft.
HULL—LIBERTY COUNTY	
Daisetta and Liberty Oil Co.'s No. 1 Bashara (W.O.)	Drlg. sticky shale and lime 4,000 ft.
Republic Prod. Co.'s No. 39-A Dolbear, Jesse DeVore Sur., 25 ft. W of No. 39	Drlg. sand and boulders 900 ft.
Wenecdan Oil Co.'s No. 2 Palmer, Chas. Underian Sur.	Rigging up to pump 2,226 ft.
PIERCE JUNCTION—HARRIS COUNTY	
Gulf Prod. Co.'s No. 34 Taylor, James Hamilton Sur. No. 52, 141 ft. S of NW cor. of J. W. Howe 130-acre tract and 430 ft. W at right angles	Rig.

Salt Water Found in Bee County Test

Coastal Country Is Encouraged by Test in Southern Victoria County. Territory Around the Damac Discovery to Be Given Another Chance

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Dec. 14.—Hughes and others got bad news in the shape of salt water in their No. 1 Martin in Bee County, a half mile south of the Simms Oil Co. gas field on the Holzmark farm. A core taken from 3,555-63 feet had been grounds for expecting something better of the test. Difficulty was had getting a drill stem test, but when made it produced salt water. This news was offset by some better news, and especially the coast country was made to look better by the drill stem test in The Texas Company's No. 3 McFadden in southern Victoria, which reflects all the way down the coast due to the anticlinal structures in that part of the country which extend approximately parallel to the coast line.

The Hughes test is about 10 miles south of the Pettus Field in Bee County and half a mile south of the Simms discovery well. The Simms Oil Co. completed two gas wells at around 3,552 feet and has delayed further development. Hughes' dry hole at the same depth, but one-half mile away, helps to define that side of the field. Al Buchanan is down around 3,000 feet in his No. 1 Mary Dorenfield, located about a quarter of a mile east of the Simms gas wells.

In the Pettus Pool The Texas Company's No. 1 Gremmel, a northwest offset to Buchanan & Lefevre's No. 1 Ray, topped the Jackson at 2,950 feet, which is the same as in the Buchanan & Lefevre well. The test at the close of the week was down around 3,300 feet and with about 600 feet more to drill to reach the sand. The Buchanan & Lefevre well is a half mile southwest of the Damac discovery well and the only test drilled between them is Weinert's No. 1 Ray, which found the sand dry. It is midway between the two.

This territory between the two ends is to be given another chance. J. M. Davis has taken over the W. L. Morgan's No. 1 Ray and is skidding the derrick. The location will be about one location south and one location east of the Weinert dry hole. On the east end of the field Slick is down feeling for the sand in No. 2 Ray, an east offset to the discovery well, and other tests in the new developing area are waiting for the results of the tests now drilling before starting in.

There is a little new activity in leasing south of Beeville in Bee County, 15 miles south of the Pettus Field. Several years ago there were five or six tests in that district. A recheck of the geology has given rise to some new theories.

Balcones Fault Zone

In the Balcones Fault zone M. O. Rayor's No. 3 Dunlop got sulphur water in the Edwards lime at 2,503 feet. This is about the same total depth as his No. 2 Dunlop, which is making a head of about 15 bbls. of oil every two days but from formations above the Edwards. No. 2 was plugged back after it got sulphur water with some oil in the Edwards.

This test has been watched with some interest because midway between the southwest end of the Joe Bruner Field on the southeast and the middle of the old Luling Field on the northwest being about 2½ miles from either. The old Bluebird Oil Co.'s No. 1 Walker, about 1½ miles northeast, which was drilled several years ago, has had much influence on drilling in that area as a fault is supposed to be proven. Cole & Moseley are rigging up on their No. 1 Pierce, about half a mile northeast of Rayor and Meyer Development Co., has made a location about a mile northeast of the Cole & Moseley location.

The oil coming from Rayor's No. 2 Dunlop is thought by some to be Edwards lime oil seeping up the fault plane, and this theory is one of the things that is giving impetus to the wildcatting.

In the upper counties of the Balcones Fault only two tests have made hole the past week. Texas Development Co. in northern Bastrop, 1½ miles northeast of Elgin, was last reported at 2,650 feet, and in eastern Milam County Red Bank's No. 2-A Foster is below 3,900 feet with top of the Pecan gap at 3,203 feet. Both are important tests. In the western part of Lee County, which lines up with eastern Milam and northwestern Bastrop in the fault zone, the tests have stood still for the past week or more.

Another effort is probably going to be made to get a well in eastern Caldwell County, southwest of the Dale Pool. Lloyd North drilled his No. 1 Keith McGee to 2,450 feet and abandoned it. It is a downthrow well. Several other tests drilled at some distance from it have helped to prove the existence of a fault and no test has yet got on the upthrow side. It is thought with the aid of the log of the Keith McGee a new location could be made that would be without doubt on the upthrow side.

West of San Antonio along the Balcones Fault tests have been standing still with the exception of Webster Oil & Gas Co.'s No. 1 Adams in southeastern Medina County, which is down around 1,400 feet and not expecting to reach the chalk before around 2,500 feet.

Edwards Plateau

Evans & Gant's No. 2 Love has been carried to 5,053 feet and is still in the Pennsylvania formation. This gives it over 3,600 feet of Pennsylvania. The first contract depth on this and other wells in the district was 4,000 feet. A deal was closed to deepen another 1,000 feet since it looked good for picking up some more sands, and it was thought possibly that might carry it to the Ellenberger. What most people would like to know is, where the top of the Ellenberger or granite is and whether or not it is within reach of the drill. Top of the Pennsylvania in the No. 1 Love, which is a mile north, was at 1,380 feet. Twenty miles due east of the No. 2 Love, the A.C.P.'s No. 1 Kendall County school lands is reputed to have got the Ellenberger at 4,635 feet and with an elevation about the same as in the No. 2 Love, the elevation being 2,380 feet for No. 2 Love and 2,335 feet for the A.C.P. test. Nothing west of the A.C.P. test has ever reached either the Ellenberger or granite, and with an ample thickness of the Pennsylvania proven showings of oil and gas indicate that accumulations are to be expected in amounts that would pay off. It is understood that an effort will be made to keep No. 2 Love going down indefinitely to find how much Pennsylvania there is in that district. The dips are to the west and the knowledge of thickness of the Pennsylvania on this eastern edge of the district would be of benefit to 50 to 100 miles of territory stretching west.

Laredo District

There were two completions in the Laredo district, both in the Escobas Pool in Zapata County. Allied Gas Co.'s No. 17-A Gutierrez in Share 4 of the Fanale subdivision of the Comitas grant at 1,400 feet is a 500-bbl. well and Fairway Production Co.'s No. 2 Bustamente in Share 35 of the same partition is a 250-bbl. well at 1,477 feet. They are both in the second sand, which is producing in the lower end of the field.

Rain Delays Work

Heavy rains all over Southwest Texas, which started in about December 4 and continued for a week, delayed work in the fields to a large extent and is responsible for scanty progress reported.

One new test is starting a mile northeast of the Slick Pool on the Goliad-DeWitt County line and another is making location about a mile southwest of the pool. The pool, to date, consists of two producers and one dry hole, the dry hole being on the southwest. C.R.M. Drilling Co. and others are rigging up on No. 1 Stopke, 1 mile to the northeast, and Simms and others are making location on the J. C. Tom tract a mile to the southwest. After proving the field with two producers further development was delayed. The discovery well was drilled a year ago, and makes some gas but also considerable oil. The second test has a less percentage of oil.

Six miles south Camp and Stanolind are rigging up on No. 3 Pettus. Early in the year Neuhaus and Stanolind drilled No. 1 Pettus and got quite a little oil in the Pettus sand at 4,307 feet. It was not enough to make a commercial well but indicated possibilities. Camp and Stanolind moved to the west and drilled No. 2 but failed to get production and now are moving northeast of No. 2 and about due north of No. 1 for No. 3 Pettus.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location— Remarks:
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1..T.D. 2,980 ft.; S.D.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan .....T.D. 602 ft.; S.D.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm, in Thomas M. Fowler Sur. No. 27 in extreme south point of county .....T.D. 1,650 ft.; S.D.
Liles Adams et al's No. 1 Luders, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155 .....T.D. 1,100 ft.; standing.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City .....T.D. 574 ft.; abnd.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,260 ft. to N line, Sur. No. 94 .....T.D. 712 ft.; abnd.

BASTROP COUNTY

E. R. Mart's No. 1 Bahme, 1,650 ft. to E line, 1,300 ft. to S line of farm, James Standifer Sur. .....T.D. 890 ft.; drlg.
Sun Oil Co.-Humble Oil & Ref. Co.'s No. 1 Powers, 400 ft. to N and E lines of Blk. 197, Bastrop town tracts. Ready to spud in.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm, in Thos. Christian Sur. .....T.D. 2,635 ft.; drlg.

BELL COUNTY

Bridwell et al's No. 1 Nichols, 150 ft. to W and N lines of farm, N. Roberts Sur. .....T.D. 330 ft.; drlg.
Bridwell et al's No. 1 G. A. White, 550 ft. to E line, 150 ft. to S line of farm, Nancy Roberts Sur., 4 miles SE from Belton .....T.D. 450 ft.; drlg.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur. ....T.D. 365 ft.; S.D.
Jas. Scroggins' No. 2 Warrick, Ingram Sur. .....T.D. 1,432 ft.; S.D.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore.....T.D. 1,870 ft.; standing.
Humble O. & R. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tr. in Garrett Roache Sur., S part of county .....T.D. 4,200 ft.; drlg.
Houston Oil Co.'s No. 3 Portis, 300 ft. E of No. 2, A. Smalley Sur. .....Location.

(Continued on Page 60)

SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location— Remarks:
Williams et al's No. 2 Strunk, Juan Montes Sur. .....Rigging up.

NORMANNA POOL—BEE COUNTY

C. F. Nichols' No. 1 Hicks .....T.D. 1,992 ft.; rigging to deepen.

PETTUS POOL—BEE COUNTY

C. R. M. Drlg. Co.'s No. 1 Ray, 150 ft. to N and E lines of lease .....Location.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur. .....T.D. 7,525 ft.; drlg.
H. H. Weinert's No. 1 Ray, 150 ft. N and E lines of lease in Jno. W. Williamson Sur. .....T.D. 4,557 ft.; drlg.
J. M. Davis et al's No. 1 Ray, 150 ft. to N and E lines of 10-ac. lease, next south of Weinerts, John W. Williamson Sur. .....Derrick.
T. B. Slick Estate's No. 2 Ray, 330 ft. to W line, 150 ft. to S line, Geo. A. Kerr Sur. .....T.D. 3,725 ft.; coring.
The Texas Co.'s No. 1 E. Gemmel, 150 ft. to S and E lines of tract in south John Pace Sur. .....T.D. 3,250 ft.; drlg.

SIMMS POOL—BEE COUNTY

Al Buchanan's No. 1 Mary Dorenfield in John Lyford Sur., 169 ft. to W line, 2,305 ft. to N line of tract....T.D. 2,850 ft.; drlg.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holzmark in John Lyford Sur. .....T.D. 3,563 ft.; tested salt water.

COOKSEY POOL—BEXAR COUNTY

Witherspoon Oil Co.'s No. 2 Pollock .....Derrick.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tr., A. Floyd Sur. .....T.D. 2,572 ft.; standing.
John Storey's No. 1 Dickerson, 150 ft. to N of center of S line of tract, John R. Rains Sur. .....Rigging up.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Magnolia Petroleum Co.'s No. 7 Wilson, 1,340 ft. to W line, 1,150 ft. to N line of Sur. No. 134 .....T.D. 1,250 ft.; drlg.

COLE POOL—DUVAL COUNTY

Cole Petroleum Co.'s No. 73 Benavides, Blk. 3, Section 19 of Cole Subd., Mariana Arispe grant .....Rigging up.

SLICK POOL—GOLIAD COUNTY

C. R. M. and H. H. Weinert's No. 1 Stopke, 660 ft. from S and W lines .....Derrick.

(Continued on Page 70)

Artesia Gas Pool Extended to Northeast

Four Northeastern Colorado Tests Disappointing but Area Too Large to Be Conclusive. Oil Well in Whitlash District, Montana

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Dec. 14.—Cold weather and frozen water lines continue to hamper drilling operations in all of the Rocky Mountain area and the number of wells shutting down until spring is showing an increase.

Potential production of the Hobbs Pool in New Mexico was placed at 1,134,822 bbls. from 146 wells on 127 units as of December 1, and allowable outlet for the first half of December is 37,218 bbls. daily. Midwest Refining Co.'s No. 8 Byers, in the southeastern part of the Hobbs Pool, blew out 300 feet above the objective and gauged 53,500,000 feet of gas per day. It was killed and is drilling deeper. Western Drilling Co.'s No. 1 Green, 4 miles northeast of the Artesia Pool, was completed as a 4,000,000-foot gasser, extending the gas pool in that district. Continental Oil Co.'s No. 17, on the Rattlesnake Dome, the discovery well in the Pennsylvanian, upon deepening to 6,928 feet, has 4,200 feet of water and 700 feet of oil in the hole, with a little gas, and is drilling ahead.

Discouraging news prevailed in northeastern Colorado. Prairie Oil & Gas Co.'s No. 1 Mortier, in Morgan County, failed to show for a producer when bailed down; Indian Territory Illuminating Oil Co.'s No. 1 State, south of Fort Morgan, is being abandoned, and Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, in the Greasewood Pool, cut 158 feet of the Dakota and has 4,000 feet of water.

The Garland Dome, in Big Horn County, Wyoming, is to be produced from the Madison, following the signing of a contract for the sale of 100,000 bbls. of oil to the Midwest Refining Co. Ward Oil & Gas Co.'s wildcat in Fremont County is being plugged and another well will be drilled. One new location was made in the Osage Field.

Montana reported an important oil discovery in Western Natural Gas Co.'s No. 1 Hicks, in the Whitlash district, 4 miles south of the Canadian line, which swabbed 45 bbls. of high gravity oil from the base of the Colorado shale. Carbon Oil & Gas Co.'s No. 1 Armstrong, 1½ miles east of the discovery well on the Dry Creek Dome, showed saturation in the Dakota sand, which is being cored.

R. J. Berry and others' test on the Crystal Dome in Idaho, has cut eight water sands without any shows of oil or gas.

NEW MEXICO

Lea County

The schedule of potentials and allowables for the Hobbs Pool as of December 1, issued by Umpire C. G. Staley, places the potential at 1,134,822 bbls. daily from 146 wells on 127 units of 40 acres each. This compares with 1,131,-303 bbls. daily as of November 16 from 145 wells on 126 units, an increase of 3,219 bbls. The allowable outlet for the first half of December is 37,218 bbls. daily, compared with 37,237 bbls. for the last half of November. Total pipe line runs for November amounted to 1,-115,651 bbls., bringing the aggregate since proration went into effect up to 7,309,933 bbls.

The southeastern part of the Hobbs Pool, to which drilling operations at present are confined, furnished another interesting development the past week when the Midwest Refining Co.'s No. 8 Byers, SE NW NW, Section 3-19-38, blew out several hundred feet above the objective pay and gauged 53,500,000 feet of gas in 24 hours. In encountered the big gas at 3,702-07 feet in porous lime approximately 300 feet above the depth at which the pay usually is encountered. The well was killed so it could be drilled deeper and at last reports was making hole at 3,786 feet. The location is approximately 1,400 feet to the south and a little east of its No. 29 Turner, C SW SW, Section 34-18-38, which first revealed the possibilities for big wells in that area when it was completed last January at a total depth of 4,175 feet. It was given a potential of 21,352 bbls. of oil and 16,500,000 feet of gas and was shut in after completion on account of the slow market for crude and its isolated position, being a mile east of the nearest producer. Last September the Midwest well was put on production and this brought about the drilling of several offset locations. The first of the new operations to be completed was the Gypsy Oil Co.'s No. 1 East Grimes, SW NE SE, Section 33-18-38, to the northwest of the Midwest's No. 29 Turner, which was given a potential of 3,013 bbls. from a total depth of 4,184 feet. The tubing in this well was run about 50 feet deeper than in the Midwest well to conserve the heavy gas pressure in the upper part of the pay, otherwise, it probably would have been a larger producer.

Two weeks ago Continental Oil Co.'s No. 4-A State-33, NE NW SE, Section 33-18-38, a diagonal offset to the Gypsy well on the northwest, blew out at 4,050 feet and gauged 266 bbls. of oil per hour and 138,500,000 feet of gas per day, a record gas well for the State. It was then drilled to the objective and completed at a total depth of 4,154 feet. The 3-inch tubing was run to 4,128 feet and a proration gauge showed 3,499 bbls. of oil and 65,218,000 feet of gas per day through casing. Through the tubing the pressure held the oil down to 130 bbls. and the gas to 29,213,000 feet.

Two other completions in this same area are about due and the results will be watched with considerable interest. Midwest Refining Co.'s No. 26 State, NW SE SE, Section 33-18-38, a west offset to its No. 29 Turner and a south offset to the Gypsy's No. 1 East Grimes, cemented the 8⅝-inch at 3,946 feet with 140 sacks and is waiting. It showed considerable gas at this depth, but did not blow out. Continental Oil Co.'s No. 5-A State-33, C NW SE, Section 33-18-38, in the same 40 acres as its No. 4-A State, is running 7-inch at 3,981 feet to cement.

Midwest Refining Co. has made a new location and is digging cellar in its No. 11 State, C NE NW, Section 4-19-38, and this will call for some offsets.

Pacific Coast Oil Co.'s No. 1 Blakey, C SW NW, Section 28-19-38, 2 miles to the southwest of production, is shut down at 84 feet waiting for surface pipe and rotary.

Eddy County

One of the largest gas wells brought in to the northeast of the Artesia Pool was completed this week in Western Drilling Co.'s No. 1 Green, NE cor. NW, Section 29-17-29, where these interests have 800 acres upon which there has been but little development. It was completed at a total depth of 2,263 feet for 4,000,000 feet of gas from four horizons. It had a show of gas at 2,176-80 feet, an increase at 2,184-86 feet and another increase at 2,250-55 feet. The largest increase was at 2,260-63 feet. Additional development on the block is expected to follow.

In the same general area, Leonard & Levers' No. 6 State, C NW, Section 28-17-29, is rigging up.

Flynn, Welch & Yates' No. 62 State, NW cor. SE, Section 10-19-28, is shut down at 710 feet on account of the storm. Same firm's No. 61 State, SE NE NW, Section 32-18-28, is shut down at 650 feet to wait for the completion of No. 62. Same firm's No. 1 State (Paul), NE cor. SE, Section 26-20-27, is still a location.

R. D. Compton's No. 1 Compton, NE NW NE, Section 8-18-27, is shut down at 150 feet on account of the storm.

Nine men who have been active as individuals in southeastern New Mexico have joined in incorporating the Premier Petroleum Corp. under the laws of New Mexico. The officers are C. C. Spicer, Los Angeles, Calif., president; J. W. Berry, Artesia, vice president; C. J. Dexter, Artesia, secretary and treasurer; and George Nillson, of Los Angeles, assistant secretary and treasurer. The other incorporators, all of Los Angeles, are Charles Donlon, Jacques Vinmont, F. E. Keeler, Maurice C. Myers and F. B. Gordon. It is probable that some development work will be undertaken following an inspection of their properties within the next week or two.

DeBaca County

Matador Oil Co.'s No. 1 Wood, NE SW SW, Section 6-4n-20, Salada Creek, is bottomed at 3,235 feet in brown shale and waiting for cement in cave to set.

Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE, Section 16-1s-27, is shut down at 4,635 feet on account of the storm.

Chaves County

Warman Oil Trust's No. 1 Evans, N half, Section 15-14s-25, Blackdom district, which has been shut down at 680 feet to finance, is preparing to resume following the return of Mr. Warman from California.

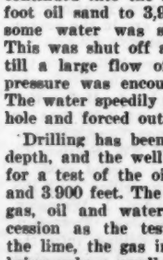
San Juan County

Continental Oil Co.'s No. 17 Santa Fe, C NE, Section 2-29-19, Rattlesnake Dome, the discovery well in the Pennsylvanian formation which is being deepened from 6,790 feet, is drilling at 6,928 feet with 4,200 feet of water and 700 feet of oil and basic sediment standing in the hole. It is making 50,000 to 100,000 feet of gas per day. Same company's No. 24, SW NW SW, Section 1-29-19,

TWIN RIVER, SOUTH ALBERTA, TEST MAY BE SMALL COMMERCIAL WELL

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Dec. 14.—In the Twin River district, southern Alberta, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, has been deepened into the Madison lime, encountering a heavy flow of water. In the previous drilling the Ellis-Madison contact was reached at 3,858 feet and oil was struck in the top of the lime at 3,870 feet. After cementing, drilling was continued into the lime, indicating a 30-foot oil sand to 3,900 feet, below which some water was struck at 3,905 feet. This was shut off and drilling continued till a large flow of water under heavy pressure was encountered at 3,938 feet. The water speedily rose 2,500 feet in the hole and forced out the oil.



Drilling has been discontinued at this depth, and the well will be plugged back for a test of the oil sand between 3,870 and 3,900 feet. The log of the well shows gas, oil and water encountered in succession as the test was deepened into the lime, the gas in the top of the lime being only a small flow. After the first oil was struck, the well bailed at the rate of 125 bbls. a day without lowering the oil, the product being a 31.5 gravity crude. A small commercial production is looked for, and if necessary the sand will be shot. The test which was located after extensive structure drilling, indicates that the Madison does not conform to surface conditions, and it is thought possible the well was drilled on the edge of a substructure dome. Parco's No. 1 was located on holdings of Nordon Corp., which holds approximately 13,000 acres on the structure.

Imperial Drilling

On the Lethbridge structure, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, is reported to have passed through the Sunburst sand without encountering oil or gas, thus conforming to conditions in the Twin River and Keho Lake drilling. It is now drilling below 4,351 feet.

In South Turner Valley, Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, is reported standing cemented at 5,600 feet.

South Turner Valley

In the Mercury tract, South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is drilling below 5,200 feet after getting into the lower Dalhousie. The potential light crude horizon in the Dalhousie is looked for around 5,250 feet, and the test should get the Madison lime between 5,350 and 5,375 feet. The outfit is swabbing between three and four hours daily, taking about 100 bbls. a day of light crude from the Home sands.

In the same section, Miracle Oils' No. 3, LSD 11, is drilling in the Dalhousie sand below 5,148 feet and will be carried to the crude naphtha horizon of the Madison lime.

In the far south end, Mar-Jon Freehold's No. 1, LSD 9, Section 28-18-2w5, has resumed drilling after setting 13-inch casing at 2,650 feet. This is the most southerly test now drilling in the field.

In Central Turner Valley, McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5, is drilling below 5,470 feet in a test of the lower horizons of the Madison.

Tests in the Foothills

In the Monarch area northwest of Calgary, Cartier-Majestic's No. 1, LSD 5, Section 36-31-7w5, is drilling below 930 feet and running three tours. Between 860 and 900 feet two small gas shows were met and the drill passed through a second "dead oil" horizon in the Belly River formation. The residue encountered indicates the oil was originally a black asphaltic crude.

In the Moose Mountain area, Graystone

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is bottomed at 6,066 feet at which depth it will standardize.

COLORADO

Weld-Morgan Counties

Drilling operations in northeastern Colorado yielded only discouraging news and unless some unforeseen development occurs, it is not likely there will be any change in the situation before spring. The possible exception is Prairie Oil & Gas Co.'s No. 1 O'Toole, 10 miles to the northwest of the Greasewood Pool, which is drilling ahead and which is the only active wildcat likely to reach the objective sands this winter.

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, south of Fort Morgan, the first well to attract attention, is plugging to abandon. After finding the Muddy and Dakota sands dry, it was planned to carry the well to the Lakota, Morrison and Sundance, but at a corrected total depth of 5,905 feet it ran into difficulties that practically destroyed the hope of making any additional hole. The results in the Muddy and Dakota became known several weeks ago. The Muddy at 5,572-5,602 feet was dry, showing neither oil, gas nor water. The sand was 30 feet thick and the interval between the bottom and the top of the Dakota was 52 feet. The Dakota at 5,654-5,805 feet, also was barren. The sand was 151 feet thick. When drilling was suspended the reports differed as to the horizon which had been reached, one being that the Lakota had been entered and found water bearing and the other being that that horizon had not yet been reached. The company's future plans have not been announced. It has a large block farther to the north, between Fort Morgan and Brush, and there is an unconfirmed rumor a test will be drilled on this acreage.

Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58, 12 miles to the north and a little west of the Indian Territory well, on the North Fort Morgan structure, is through the Dakota and is drilling at 6,040 feet with the Lakota as the next objective. The top of the Dakota was at 5,836 feet. In the upper part of the sand there was a show of oil and gas, but as the sand was drilled the quantity of the water in the hole showed a steady increase.

Prairie Oil & Gas Co.'s No. 1 Mortier, C NE NW, Section 2-5n-60, in the Jackson Lake district, 6 miles southeast of the Greasewood Pool and 10 miles northwest of the Colorado Associated well, proved a disappointment in the Dakota when bailed down to test. It was bottomed at 6,564 feet, 34 feet in the Dakota, when bailing started. When the water was practically exhausted, there was only a slight show of oil. It bailed 6 bbls. of fluid per hour of which little more than a trace was oil. The temperature at the bottom of the hole was 238° F. and this was considered an indication of water being near. Coring ahead has been resumed and it is probable lower sands will be tested before plugging back and testing the Muddy which showed some saturation in the cores.

Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, on the west side of the Greasewood Pool, and the only well in that area to test the Dakota, topped the Dakota at 6,756 feet and passed out of it at 6,914 feet, being 158 feet thick with a 10-foot shale break at 6,775-85 feet. Total depth is 6,916 feet and the well is shut down until spring when it probably will be drilled to the Lakota. The top 19 feet of the Dakota was bone dry, but beneath the shale break water made its appearance and when the sand had been penetrated it stood 4,000 feet in the hole. The temperature of the hole at 6,850 feet was 242° F. The shutdown until spring was made necessary by the lack of water. The pipe line from Jackson Lake is on the surface and it is almost impossible to keep it open.

Starting with the Reiter-Foster well and drawing a line to Prairie's No. 1 Mortier, Colorado Associated's No. 1 Pumphrey and Indian Territory's No. 1 State, it will be found that the line runs in a northwest-southeast direction and then turns south, following rather closely the uplift as mapped by the U. S. Geological Survey in its Bulletin No. 796-B. While these wells all tested the Dakota with discouraging results, operators do not feel the possibilities of northeastern Colorado are by any means exhausted. It is to be remembered that the basin in which these tests were drilled is at least 150 miles wide by 200 miles long and much larger than the basin in southeastern New Mexico, and that the difficulties in working out the geology are in many respects similar in the two areas. Yet, it was estimated that between $15,000,000 and $18,000,000 was spent in the lease and wildcat play in southeastern New Mexico before the principal pools were discovered. On the contrary, only four tests have so far been drilled to the objective in northeastern Colorado outside of the Greasewood Pool and these followed generally only one line of folding, while there are other districts looked upon as being very promising. Simmered down to a final analysis it is agreed that four wells drilled 6 to 10 miles apart can hardly condemn such a large territory. As far as the Greasewood Pool is concerned, no tests have been drilled to the north, east or southeast of the three producing wells and until this is done, the productive area of that pool will remain a guess.

Prairie Oil & Gas Co.'s No. 1 O'Toole, C SE NE, Section 33-7n-62, 10 miles to the northwest of Greasewood, is drilling out plug after cementing the 9⅝-inch at 4,438 feet and still has more than 2,000 feet to go before it reaches the objective.

Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, on the southwest of the Greasewood Pool, which had a show of oil in the Muddy at 6,673-91 feet, was bailed down and the water exhausted. Oil stood 500 feet in the hole, but there was very little gas. No work has been done on the well since bailing down on account of water shortage and it may stand until spring.

Continental Oil Co.'s No. 1 Gadbois, C SE SW, Section 24-6n-61, between the Greeley well and the Greasewood discovery well, is still fishing for tools at a total depth of 6,593 feet. Part of the drilling string has been recovered. All other operations and locations in the Greasewood Field are idle.

Continental Oil Co.'s 17-mile 4-inch pipe line from the Greasewood Field to Hardin, on the Union Pacific Railroad, began running oil December 9. It required 1,400 bbls. to fill the line and pumping oil into the pipe began on Monday.

Frank E. Kistler & Co., who have the leases on the two state sections in Section 36-6n-61 and Section 16-6n-60, to the south and east of Greasewood, have been granted an extension on drilling requirements. The original leases provided for the starting of a well by December 1 with three others to follow at intervals of 90 days.

Retter Oil Co. has contracted with Andrews Star Drilling Co. for a shallow test on Section 24-1n166, in the Brighton-Lupton district, just southeast of its No. 1 Smith. This hole, which is to spud by December 15, will go to a sand at around 800 feet which had a show of oil estimated as good for 15 bbls. per day, but which was not tested.

Larimer County

Raddatz Corp.'s No. 2 Fagan, NE SE NE, Section 17-4n-69, Berthoud Dome, is drilling at 3,050 feet in black shale after setting the 8¼-inch at 2,400 feet.

Mayer Oil Co.'s No. 1 Reed, SW cor. NW, Section 2-4n-69, is repairing boilers. The 6⅝-inch has been underreamed to 1,882 feet.

Adams County

Hills Dome Oil Lease Development Co.'s No. 1 Hills, SE cor., Section 27-3s-64, near Watkins, is rigging up to resume at 3,790 feet after changing over from coal to oil for fuel and increasing the quantity of power available.

Boulder County

Julius Williams' No. 1 Degge, NE SE SE, Section 6-1n-71, Boulder arch, is drilling at 929 feet.

Elbert County

Progressive Oil & Land Co.'s No. 1 Pease, NE SE SW, Section 27-10s-60, Stringer district, a mile north of Simla, is reported drilling at 3,800 feet. This well spudded early in 1929 to go 3,000 feet, but for the past two years was reported shut down at 250 feet.

Rio Blanco County

Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Piceance Creek, is drilling at 2,125 feet, and California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is drilling at 3,265 feet.

WYOMING

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, which found water in the Sundance at a total depth of 8,596 feet, has plugged back to 7,374 feet and set a 5⅛-inch liner to test the second Frontier at 7,465-75 feet, which showed 10 feet of saturated core on the way down.

Bales Oil Trust's No. 1 Brome, NE NW, Section 31-48-80, Hidden Dome, is shut down at 1,105 feet and will not resume until weather conditions are better.

Fremont County

Ward Oil & Gas Co.'s No. 1, NE cor., Section 28-34-90, Dutton Basin, is being abandoned at 2,530 feet in the top of the third Wall Creek. Rig will be skidded and another test drilled nearby. It had shows of oil and gas in all three sands of the Frontier, but not in commercial quantities.

Weston County

Tug Oil Co. has made a location in the W half SW, Section 15-46-64, in the Osage Field near the 600-bbl. well completed recently by Federal Oil Co. Chadron-Osage Oil Co.'s No. 15, NW cor. SW, Section 14-46-64, an east offset to the Federal well, is drilling at 1,600 feet.

Campbell County

J. H. Voorhees, of Belle Fourche, S. Dak., and associates, have leased approximately 20,000 acres on several structures near the town of Gillette and it is reported that a test will be started on the Hay Dome in the spring.

Crook County

Baker Exploration Co., financed largely by residents of Baker, Mont., has started a test to the Muddy sand on a block of leases near Kara, in the southwestern corner of the county.

Goshen County

Phillips Petroleum Co. is core drilling to work out the subsurface geology on the Newell ranch north of the town of Lingle. The first hole was drilled to 1,050 feet, 250 feet in the Pierre shale, which showed a dip of 10 degrees to the mile. A second hole is now drilling at 900 feet.

Carbon County

Producers & Refiners Corp.'s No. 4 Wertz Dome, SW cor. SE, Section 7 26-89, is fishing for rods and tools at a total depth of 3,541 feet.

MONTANA

Liberty County

A discovery which is attracting attention and to which considerable importance is attached, is reported in Western Natural Gas Co.'s No. 1 Hicks, C NW NE, Section 26-37n-4e, Whitlash district, in the Sweetgrass Hills, 4 miles south of the Canadian boundary and to the northeast of the Kevin-Sunburst Field. The hole was drilled to a total depth of 1,696 feet and cut a sand in the base of the Colorado shale at 1,631-65 feet from which oil rose 800 feet. This sand correlates with the First Cut Creek sand and lies just above the Kootenai formation. A telephone message says the well was swabbed on December 6 and made 45 bbls. of high gravity oil estimated at 45 to 50 degrees gravity. It lies between two local highs on which gas has been encountered in former operations and apparently is structurally low and in a faulted area. About 2 miles to the northwest of No. 1 Hicks are a group of gas wells which supply gas to the Great Falls line of Northwestern States Utilities Co., and to the southeast several gas wells and a small oil well have been drilled in the Bear's Den district. The new well is three-quarters of a mile south of the same company's No. 1 McHoney, C SE NW, Section 23-37-4e, completed a year ago as a 9,000,000-foot gasser in the Sunburst sand at 2,063-68 feet, and 2 miles northeast of its No. 1 Demarest, SE NE, Section 28-37-4e, which was abandoned in 1927 after having a show of oil estimated at 10 to 15 bbls. a day. The Whitlash district to the northwest has a developed gas production of close to 50,000,000 feet a day.

In the Utopia district to the southeast, California Co.'s No. 1 George Ross, NE SE NE, Section 3-33-6e, is drilling at 745 feet.

In the Bear's Den district, People's Natural Gas Co.'s No. 1 First National

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FIVE DRILLING PERMITS ISSUED IN CENTRAL MICHIGAN FIELDS

MOUNT PLEASANT, Mich., Dec. 12. Five drilling permits for projects in the central Michigan oil fields were issued by the geology division of the state conservation department this week. The permits are as follows:

Walter Lee McClanahan's No. 3 Stroube, Midland County, Greendale Township, NW SE SW, Section 10-14n-2w; Pure Oil Co.'s No. 1 Joe Novack and others, same township, SE NW NE, Section 18; No. 1 Bond-Tenney and others, same township, NE NE NW, Section 14; No. 1 Mason-Kidder, same township, Section 17; and No. 1 Frank Howland, Porter Township, same county, SW SW SW, Section 23-13-1w. All are in proven territory.

Pure Oil Co.'s No. 1 Howland in Porter Township is a location just north of the Pacific Oil & Gas Co.'s No. 1 Ottway in Section 26, which was completed in November with a 75-bbl. a day flow and is making about 50 bbls. The Ottway was a wildcat project, about 10 miles south and east of the proven east pool. No. 1 Howland will be the second test in that area. McClanahan's No. 3 Struble location is north of the No. 1 Struble fire well, and one of the first tests in the area north of the proven field, most drilling having extended east and south prior to this time. Both of the wells completed on the Struble farm made better than 1,000 bbls. a day initial. Pure Oil Co.'s three new locations besides the one in Porter are in the proven Greendale Township area.

Only two projects were drilled into the Dundee formation during the week, and neither had been completed. Mellon-Pollock struck the Dundee at 3,763 feet on their No. 2 Brief, Vernon Township, Isabella County, NW NE SW Section 22, and the well had made a good show of both oil and gas when drilled to 3,768 feet. Pure Oil Co.'s No. 1 Wampler, Midland County, Greendale Township, Section 9, was being drilled into the Dundee. The top of the sand was reached at 3,486 feet. Deerfield-Nottawa Oil & Gas Co.'s No. 1 Smith-Tilman, Section 35, Nottawa Township, Isabella County, a test for gas, was shut down at 1,160 feet for casing. It was expected the well would be drilled into the Marshall sand early next week.

Leonard Petroleum Co. has resumed drilling on its No. 9 McClintic, Isabella County, Chippewa Township, Section 9, a location in the old Mount Pleasant Pool. The well was shut down in May, 1931, after having been cased through the Marshall sand.

A survey of the central Michigan oil fields as of November 1 showed the total open flow production of the area as

California Expects Upward Revision

Additional Curtailment of Approximately 50,000 Bbls. Daily Likely to Be Followed by Improvement in Market Structure

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Dec. 14.—The most important problem confronting the California oil industry is the necessity of reducing crude production to economic requirements during the next six months. If this objective can be reached and maintained from January 1 to June 30, 1932, the industry on the Pacific Coast will be in a very satisfactory condition and able to show fair earning statements. The curtailment program during the first half of 1932 does not contemplate any appreciable reduction in stocks, but is predicated on the assumption that if storage figures can be maintained at their present level, Pacific Coast stocks can be brought down to the desired economic level during the last half of the year. To prevent any accumulation during the first six months, California operators will be obliged to reduce daily production to 456,700 bbls.

Crude oil production has been averaging around 500,000 bbls. per day during the past several months with the result operators will be obliged to effect an additional curtailment of approximately 50,000 bbls. to reduce the state's output to the proposed maximum allowable of 456,700 bbls. per day. How and where to make this additional curtailment is the principal problem confronting the Operators' General Committee on State-wide Curtailment. The additional curtailment necessary can be effected under certain favorable conditions. To do this, however, it will be necessary to re-establish the potential daily production of a number of properties where the existing rated potentials are entirely too high. This realignment is not necessary on properties where there are a number of wells shut in, but tests should be conducted where the re-establishment of potentials would not cause any inconvenience to operators by requiring them to recomplete wells which have been shut down for a long time.

The local situation has reached the stage where it requires only a final tightening up of production coming down the home stretch. With the exception of Kettleman Hills, where operators have exhibited a commendable co-operative spirit, and Elwood, where a proposed plan of unit development is being considered by operators, there are no new fields in the ascendancy. This simplifies the curtailment program and should encourage operators to effect the required additional curtailment as they can feel reasonably sure no town lot area will suddenly upset their concerted efforts. The situation is such that California producers are in a position to command an upward revision in crude and refined oil prices early next year. To accomplish this, however, operators must get down to the maximum allowable and stay there. The opportunity is here and the future trend of prices rests entirely with producers. They can write their own ticket. Based on past experience, production will be substantially reduced.

Exploration Work

After a period of inactivity extending over several months, prospectors in California are beginning to resume a limited amount of exploration work, several new wildcats having either already been spudded or scheduled to start work in the immediate future. These tests are in areas containing large blocks of acreage and consequently should not upset the curtailment program as there will be no town lot or competitive drilling. No general resumption of exploration work is anticipated in the immediate future but several wildcats are scheduled to be started early in the new year. The search for new fields has been severely restricted during the past several months due primarily to the cessation of all exploration work by major companies and the relatively low price of crude which has left but little margin for wildcatting by the independent operator. Several heretofore untested areas will be tried out during 1932. In addition to this projected exploration work, the possibility of an upward revision in crude price schedules resulting from more effective curtailment will probably cause a number of operators to recondition producing wells which have been shut down because of excessive production costs.

In the central part of the state, the Union Oil Co. is making preparations to drill a wildcat a few miles southeast of Tracy in San Joaquin County. This work will be watched with keen interest because it is located in the area north of Coalinga where no substantial production has been developed. The Union has leased approximately 8,500 acres of potential oil land in this section and present plans contemplate the starting of work on or before February 1, 1932. The Standard Oil Co. has also decided to test out the vast area north of Coalinga but it is not known just how soon actual work will get under way. The company's land department recently leased 2,000 acres near Corning in Tehama County, where several thousand acres have been leased during the past several months. This area is somewhat south of Red Bluff and shows unusual promise as far as possible gas production is concerned. A commercial oil or dry gas field in this locality would be especially advantageous to the Standard because of the proximity of its Richmond refinery near Oakland and its interest in utility gas corporations serving natural gas to the San Francisco Bay region. The Texas Company, Union, Cities Service and several smaller operators have all acquired acreage east of Corning in the vicinity of Woodson Hill and it is probable at least one test will be drilled in this area early in 1932. Yolo County may also see some exploration work next year but nothing definite has come to light so far.

Wheeler Ridge Wildcat

The Barnsdall Oil Co. recently spudded in a new wildcat a few miles north of the Wheeler Ridge Field in the extreme southern part of the San Joaquin Basin and this test may open up a new field as the area justifies exploration work. East of Wheeler Ridge, the Descanso Oil Co. has a rig up on some acreage acquired from Dr. J. J. Ritchie. The Descanso's rig is about 3 miles from the Wheeler Ridge Field and approximately 2 miles west of a duster drilled by Doctor Ritchie. The Barnsdall and Rio Grande, codiscoverers of the Elwood Field of Santa Barbara County and likewise discoverers of production on the Golconda anticline at Wheeler Ridge, recently consummated a lease for 1,750 acres of the Harris ranch just north of the Golconda area. This new lease, which is southwest of Careaga in Santa Barbara County and a little less than 2 miles northwest of the Vaqueros Major Oil Co.'s lease on the extreme eastern end of the Purisima anticline, is expected to be tested early in 1932.

Gato Ridge Field

The Barnsdall and Rio Grande's discovery well, No. 1 Tognazzini, in the Gato Ridge Field of Santa Barbara County, has been shut in since its completion several months ago due to the absence of pipe line facilities and the inability of the market to absorb any additional quantity of heavy crude. A survey is being made and this area may be on production early in 1932. To market future production these operators are faced with the necessity of constructing a 35-mile pipe line from Gato Ridge to tidewater at Gaviota or tie in with the Union Oil Co.'s Lompoc pipe line facilities. It might be possible to make connections with the Associated's Gaviota pipe line either for the direct sale of production or on a transportation basis. The Texas Company has just about completed its leasing program in the Carpenteria area situated along the sea coast of Santa Barbara County and will drill a deep wildcat if a series of core hole tests show such a procedure to be justified. The Continental Oil Co. drilled several tests at Carpenteria a few years ago but subsequently quitclaimed its holding because of the unfavorable outlook. One of these wells showed an unusually heavy gas pressure and resulted in several fatalities when a lead line to the sump broke loose and began swinging like an uncontrolled hydraulic giant. The flow of dry gas was subsequently killed and the well abandoned after being mudded off and the hole filled with cement.

Channel Islands Tests

The Standard Oil Co. has recently undertaken extensive reconnaissance work in the Santa Barbara Channel islands and is expected to start one or two tests during 1932. About a year ago, the company acquired exclusive drilling privileges on Santa Cruz Island, which contains aproximately 50,000 acres. Within the past several months the Standard consummated similar arrangements for exploration work on Santa Rosa Island, almost due east of Santa Cruz Island. The Santa Barbara Channel islands are just off the Santa Barbara coast line due south of the Elwood Field and southwest of the Ventura Avenue and Rincon Fields of Ventura County. They are especially interesting from a geological standpoint because of their relative position with respect to the group of oil fields dotting the coast line of Santa Barbara and Ventura Counties. Both the Elwood anticline and the major Ventura Avenue anticline plunge out beneath the water of the Santa Barbara Channel. It is obvious that one or more potential oil fields are located out in the Santa Barbara Channel in navigable water too deep to permit exploration work.

The Standard is not predicating its exploration work in the Channel islands on the assumption that it may be able to intercept the Elwood or Ventura Avenue anticlines but rather on the possibility that Santa Cruze and Santa Rosa Islands may contain another series of parallel folds. Several years ago the Barnsdall and Continental contemplated wildcat exploration on the Santa Cruz and Santa Rosa Islands but no actual work was undertaken. A rather comprehensive geological survey has been made of the two islands and a number of structures have been mapped.

Kettleman Hills

The Kettleman North Dome Association recompleted its No. 1-12-P a few days ago and returned it to production flowing 18,000,000 feet of gas and 900 bbls. of 60.0 gravity oil per day. This well, originally completed by the Continental Oil Co. was killed several months ago after being taken over by the Kettleman North Dome Association. It was recompleted in the Elliott zone, from which horizon it had been producing until it was killed by the Association. When this well and the Milham Exploration Co.'s discovery well were killed several months ago it was the intention of the association to redrill and deepen them from the Elliott to the Ochsner zone. No difficulty was experienced in mudding off the flow but the pile of junk at the bottom of each hole prevented the resumption of drilling. No. 1-12-P was consequently returned to production from the original bottom, 6,876 feet. The Kettleman North Dome Association has two large gas wells on production in the north dome. These are No. 41-2-P, flowing 1,950 bbls. of 49.6 gravity oil and 40,000,000 feet of natural gas, and No. 58-2-P, producing 1,075 bbls. of 64.3 gravity oil and 58,000,000 feet of natural gas per day.

The most important well under way in the north dome of Kettleman Hills is perhaps Kenda's No. 36-30-J, in the extreme western part of the field in Section 30-21-17. This well is on property southwest of the Superior's Huffman lease and adjoins the Union's King lease

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	.....	.....	1,566,803	3,749,296
Gasoline	245,053	35,007	55,133	7,876	12,311,486	18,154,370
Kerosene	.....	.....	.....	.....	187,934	.....
Coastwise—						
Crude oil	319,760	45,680	179,310	25,616	19,911,960	14,797,528
Fuel oil	286,673	40,953	340,235	48,748	12,754,036	17,629,097
Diesel and gas oil	.....	.....	28,935	4,134	1,391,590	1,611,114
Gasoline	216,818	30,974	195,786	27,969	13,553,563	12,066,561
Kerosene	.....	.....	10,305	1,472	311,081	156,428
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	73,100	10,443	198,685	28,384	6,866,799	6,619,622
Fuel oil	267,167	38,167	281,616	40,231	12,556,142	16,601,640
Diesel and gas oil	33,537	4,791	59,689	8,527	3,288,480	4,122,072
Gasoline	90,695	12,956	343,696	49,099	8,009,959	14,844,085
Kerosene	.....	.....	5,211	744	1,645,733	3,228,711
Lubricants	.....	.....	.....	.....	36,352	59,179

TANKER SHIPMENTS, SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	279,088
Gasoline	.....	.....	78,573	11,225	1,114,667	1,144,921
Kerosene	.....	.....	.....	.....	.....	10,750
Lubricants	.....	.....	.....	.....	38,236	27,796
Coastwise—						
Fuel oil	97,270	13,896	115,468	16,495	3,398,534	3,198,019
Diesel and gas oil	32,960	4,709	.....	.....	433,812	356,476
Gasoline	83,789	11,970	93,239	13,320	4,115,717	4,099,273
Kerosene	.....	.....	.....	.....	284,095	218,220
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	.....	.....	.....	.....	494,511	59,993
Fuel oil	.....	.....	.....	.....	1,589,858	1,049,140
Diesel and gas oil	70,571	10,082	.....	.....	606,231	539,646
Gasoline	.....	.....	128,112	18,302	4,378,588	3,859,900
Kerosene	.....	.....	111,777	15,968	914,099	593,097
Lubricants	.....	.....	.....	.....	25,693	33,579

and a 160-acre tract of the Standard on which production has already been developed. With the top of the brown shale encountered approximately 500 feet higher than anticipated, this well looks good for exceptionally substantial production. Its completion will prove up practically all of the Union Oil Co.'s Amerada King lease of 160 acres in Section 29-21-17. The Petroleum Securities is landing pipe in No. 1 Burbank, a test in the middle dome of Kettleman Hills, and unless something unforeseen develops, a production test will be made within 15 days. This well was carried to 9,332 feet, but has been plugged back to 9,208 feet because the gray sand logged in the bottom did not show any cut and looked like a possible water sand.

Dominguez

The Shell Oil Co. failed to effect a satisfactory water shutoff in No. 41 Reyes, a new well in the Dominguez Field, and the company has found it necessary to recement the 11¾-inch water string at 3,887 feet. On a preliminary production No. 41 Reyes flowed at the rate of 950 bbls. per day but will probably do better than 1,000 bbls. per day when a water shutoff has been effected. The Associated Oil Co. has completed tentative plans for the drilling of No. 11 DeFrancis and rig construction is expected to get under way within 10 days. Instead of prospecting the shallower zones, the Associated expects to develop commercial production at approximately 5,400 feet, as the Union Oil Co.'s No. 26 Callender, a recent completion, showed good production from 5,393 feet. The oil from this new zone tests 40.1 degrees and is substantially higher in gravity than any oil produced in the Dominguez Field. The Associated's DeFrancis lease adjoins the Shell's Reyes lease where one new well has already been completed and another, No. 41, expected to be recompleted within a few days.

Potrero

Beloil Corp. recompleted No. 1 Sloan in the Potrero Field early in the week and this project, acquired from the Universal Consolidated Oil Co. on a drilling and production basis, was recompleted flowing 810 bbls. of exceptionally clean 36.9 gravity oil and 1,050,000 feet of gas per day after being redrilled and deepened to the recently discovered Coffin zone at 6,238 feet. The Taylor Oil Co. has picked up the Coffin zone in No. 8 Rawco just below the 6,400-foot level and this well is expected to be given a production test within 10 days. The Scott Brothers Drilling Co. is rigging up to deepen Hugh Grant's well No. 4 and the Wilshire Oil Co. is making preparations to redrill and deepen George F. Getty's No. 4 Potrero.

Playa Del Rey

Drilling operations in the Playa Del Rey Field are gradually getting smaller and, with the exception of the Union Oil Co., future development work should be brought to a close early in the new year. The Union and Ohio each have a number of undrilled locations available for future work, but are refraining from undertaking additional drilling at present. The former is conducting a production test on No. 1 Vidor, in the extreme eastern part of the field, and may possibly be obliged to drill another well or two if the production of this well should hold up. During the initial 24-hour test it produced 300 bbls. on a compressor. This project was drilled early this year and shut in immediately upon the conclusion of drilling operations when it failed to result in a natural flow. During the initial test subsequent to completion several months ago, the Union's No. 1 Vidor showed evidence of resulting in a natural flow but failed to come up to expectations. Fluid would follow the swab to the crown block but the necessary quantity of natural gas to maintain a natural flow was not present.

The Superior Oil Co. has given up its attempt to develop deep zone production in the Huntington Beach town lot area, at least for the present, and in conformity with this policy is making preparations to plug back No. 1 fee and make a production test higher in the hole. W. E. McCaslin is still working on his deep test, No. 17 Transport, bottomed at 8,365 feet, and while he has been able to swab a little oil, the well does not have sufficient kick to result in a sustained natural flow. The Huntington Signal Oil Co. spudded in No. 2 Hand, a new well, the first to be started at Huntington Beach for several months, and good progress is being made. The Standard spudded in No. 50 Emery in the West Coyote Field early in the week, thereby giving it four strings of tools in operation. Three of these wells, all on the Murphy Coyote property, are expected to be completed in the shallow zone within a few weeks. The Baldwin Hills Syndicate has just passed the 2,000-foot level in No. 1 Sentous, a projected deep test just outside of present production in the Inglewood Field of Los Angeles Basin.

Round Mountain

The Golden Bear Oil Co. finished its No. 7 in the Round Mountain Field of Kern County in the week and this well was brought in pumping 330 bbls. of 16.1 gravity oil per day from 1,715 feet, the hole having been completed with an 8⅝-inch liner carrying 25 feet of perforated. Drilling operations have shown a tendency to increase in the Round Mountain Field during the past few months although this work cannot be considered as of a competitive nature as the wells completed have been located well back of the property lines and consequently do not require the drilling of any off-

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NEW GAS WELLS AND DRY HOLES REPORTED FROM TIOGA GAS AREA

By Special Correspondent

WELLSBORO, Pa., Dec. 12.—A number of drilling wells in the Wellsboro area, in search for gas, have been abandoned as failures. These include the Penn United Gas Co.'s No. 1 George Boom, in Lawrence Township, Tioga County, at a total depth of 4,187 feet; the Brad-Lawrence test on the Ryder farm, Lawrence Township, at 4,068 feet; Vaughn & Rose's No. 1 G. Cummings, Middlebury Township, Tioga County, depth not given; Mosherville Oil Co.'s No. 1 Braisted, in Wells Township, Bradford County, at 4,750 feet, and through the Oriskany sand; Schellheimer and others' No. 1 Mittendorf, Cherry Township, Sullivan County, total depth not given, and the Schrack and others No. 1 Myers in Shrewsbury Township, Lycoming County, depth not given.

The Lycoming Natural Gas Co.'s most recent success in this field, No. 2 Hoyt in Farmington Township, Tioga County, is rated at 7,250,000 feet of gas per day. The Penn Realty & Investment Co.'s No. 1 Barcroft, in Lawrence Township, is credited with a potential of 6,000,000 feet per day and the same company's No. 1 Colegrove in Lawrence Township is rated at 2,250,000 feet per day.

The Booth well, in Hebron Township, Potter County, where eight lengths of pipe were dropped into the well, which was giving an open flow of 8,000,000 feet in 24 hours, has at last been shut in. The dropping of the pipe practically shut off the flow but when the rest of the casing was lowered they found it possible to cement the top, the rock pressure came up to 2,190 pounds and the estimated capacity before the well was shut in was about the same as before the mishap. Hungiville and others are the owners of the well.

Gas that is believed to have seeped through the overlying strata from gas wells or a gas sand in the Wayne village field in Schuyler County, New York, is thought to have been responsible for an explosion that wrecked a dwelling and seriously burned Mrs. Clifford Boyce. Many closely spaced gas wells have been drilled in the little village of Wayne. Awaiting a market for the gas, the wells have been shut in. The supposition is that the gas found its way into the water well of the Boyce family and to have then filled the space under the house. Mrs. Boyce was preparing a meal when the explosion occurred.

Deep Tests in the Field

A number of wells in the Tioga and Bradford Counties have been drilled considerably below the Oriskany sand and are still more or less active but have

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IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	7,350	testing
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	suspended
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14	rig	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Lawndale Pioneers, Inc., No. 1 Peck, Los Angeles Co.	20- 3-14	4,500	hd. sh. drilling
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	cleaning out
Ranger Pet. Co., No. 1 Watson, Los Angeles Co.	28- 4-13	3,695	will test
Avalon Park Dev. Co., No. 1 Watson, Los Angeles Co.	17- 3-13	rig	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	suspended
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	2,250	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	116	suspended
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,903	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	5,011	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	1,004	basalt?
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,460	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	4,160	br. sh. drilling
Simi Oil Co., No. 2 Calabasas, Los Angeles Co.	18- 1-17	208	cable tools
Marble, Wilard, No. 1 Chatsworth, Los Angeles Co.	6- 2-16	1,203	hd. sd. drilling
Superior Oil Co., No. 1 Newport, Orange Co.	27- 6-10	4,612	sd. sh. drilling
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	6,184	br. sh. drilling
Vaquerca Major, No. 1 Tideland, Orange Co.	32- 5-11	1,622	suspended
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 2- 2	3,435	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	cleaning out
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	626	sd. sh. drilling
Woods, D. H., No. 1 Salton Sea, Imperial Co.	7-11-16	640	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,124	abandoned
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 3	1,343	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,650	hd. sd. drilling
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 6- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palma, San Diego Co.	25-11- 8	510	cleaning out

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	8,350	br. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	producing gas
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	producing gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,912	redrilling
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149, Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 2-29	2,099	suspended
Johnson & Strickland, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,886	suspended
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Pacific Finance Co., No. 1 Carpenteria, Santa Barbara Co.	Tideland	1,800	cleaning out
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	1,730	cleaning out
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,790	deepening
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	5,225	may abandon
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	5,375	sd. sh. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 6 Buttonwillow, Kern Co.	8-28-23	4,165	bl. sh. drilling
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	1,144	sd. sh. drilling
Federal Drig. Co., No. 1 Buena Vista, Kern Co.	30-31-24	5,330	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	7,400	br. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	suspended
Rio Cal Pet., No. 1 Shale, Kern Co.	2-27-18	3,355	suspended
Wicker, Sr., No. 1 Arvin, Kern Co.	12-30-28	3,850	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	2,005	suspended
Fullerton Oil Co., No. 1 Semitropic, Kern Co.	25-27-23	2,150	core hole
Standard, No. 1 Devil's Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devil's Den, Kern Co.	17-26-18	2,975	br. sh. drilling
Signal Oil Co., No. 1 Blackwell Corner, Kern Co.	15-26-19	106	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	4,000	Diorite
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	880	hd. sd. drilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-19	1,030	redrilling
Barnsdall Oil Co., No. 1 Tejon, Kern Co.	15-11-20	rig	rigging up
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Descanso Oil Co., No. 1 Tejon, Kern Co.	31-11-19	rig	suspended
Associated, No. 1 Jacalitos, Fresno Co.	23-21-15	6,197	suspended
Kingsburg Expl. Co., No. 1 Kingsburg, Fresno Co.	30-16-23	1,580	sd. sh. drilling
Kent & McDonad, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,475	br. sh. drilling
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	cleaning out
Indian Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	26-31-12	3,380	cleaning out
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	2,990	redrilling
Emerich Oil Co., No. 1 Atascadero, San Luis Obispo Co.	13-28-12	1,560	br. sh. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	1-29-12	1,650	suspended
Pacific Inland, well No. 1, Monterey Co.	19-23-15	2,080	gr. sd. drilling
Brown, W. F., No. 1 Parkfield, Monterey Co.	15-23-14	1,051	suspended
Guess, E. B., No. 1 Monocline, Kings Co.	7-21-21	6,197	cleaning out
Byron, N. W., No. 1 Dudley Ridge, Kings Co.	32-22-20	rig	rigged up
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well, idle
Irma Investment Co., No. 2 Dudley Ridge, Kings Co.	7-23-20	474	sd. sh. drilling
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well, idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	480	sd. sh. drilling
Kettleman Oil & Gas Co., No. 1-A Dudley Ridge, Kings Co.	20-23-20	1,194	gas well, idle
Valley Expl. Co., No. 1 Dudley Ridge, Kings Co.	12-23-19	1,302	cemented
Valley Expl. Co., No. 2 Dudley Ridge, Kings Co.	12-23-19	1,200	will test
Valley Expl. Co., No. 3 Dudley Ridge, Kings Co.	18-23-19	....	material
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	4,600	suspended
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Tulare Basin Gas Co., well No. 1, Kings Co.	17-23-19	rig	rigged up
Tulsco Oil Co., No. 1 Corcoran, Tulare Co.	20-22-22	rig	suspended
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,200	redrilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tuare Co.	20-24-23	1,920	cleaning out
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,694	suspended
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,120	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	1,020	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,750	suspended
Hilderbrandt, R., No. 1 Crows Landing, Stanislaus Co.	36- 6- 7	rig	rigged up
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	3,040	suspended
San Joaquin Expl. Co., No. 1 Los Banos, Merced Co.	36-10- 9	....	location
Union Oil Co., No. 1 Tracy, San Joaquin Co.	14- 3- 6	....	location

Stark County Is Busiest in Ohio Field

Perry County Leading All Other Sections in Indiana Activity. Eight Completions Reported From Western Kentucky Fields

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Dec. 14.—Central Ohio and Indiana Fields show the greatest activity, although nothing startling was developed in any of the Central West divisions. In the old Lima Field of northwestern Ohio the most active area at this time is centered in Wyandot County. The latest completion in this county is Jones & Coyle's No. 2 Josephine Higgins farm, just east of the highway and northeast of the Sandusky River, in Section 17, Tymochtee Township, the well showing 394,000 feet of gas in the Trenton limestone from 1,367-76 feet. This well will be connected to the gas line of the Ohio Fuel Gas Co., and is not far removed from the new sweetening plant of the gas company. A number of new wells have been started and additional locations staked. In this township, McPherson, Miller and Cook are drilling No. 3 on the Bowman-Billhart farm, Section 21, south of the Sandusky River, about 1,200 feet south and east of No. 1, which is a fair oil well and a fairly good gas producer. O'Neal and others are drilling No. 1 on the A. T. Spayth farm, Section 6, same township. Jones & Coyle are drilling No. 2 R. and R. Criswell farm, Section 17, and have a rig in for No. 1 on the Bare farm, same area. In Crane Township, the Upper Sandusky Gas Co. is starting a test on the Saltsman farm, Section 28. R. W. Kurtz and others staked locations for No. 2 on the Elmer E. Moser farm, Section 11, Ridge Township, and also for No. 1 on the Ettie Smith, Section 11, same township.

In Hardin County, the Wiser Oil Co.'s No. 7 Grant Geiger farm, Section 13, Cessna Township, produced 5 bbls. from the Trenton lime from 1,362-71 feet. No. 8 same farm is drilling, but in Section 12.

Enis Brothers and others are drilling on the William Harpest farm, Lot 4,478, Jefferson Township, Logan County.

CENTRAL OHIO

In 13 counties of the Central Ohio Field proper there were a total of 10 completions, 3 being dry holes and 7 gas wells, while along the outer edges of the field there were 4 additional wells brought in, one being dry and 3 were gas, there being no oil wells listed, making a total of 14 new wells for the week. Stark County maintains the lead by far in development work and the gas is found at depths from 4,000 to 5,000 feet. The bulk of the operations in Stark County is being done by the Ohio Fuel Gas Co., East Ohio Gas Co., and Brendall and others.

In Ashland County the Commonwealth Gas Corp. failed to find any sand on the C. C. Good farm, Section 32, Jackson Township, and it goes as a dry hole. Eddy and others are shut down in their No. 4 on the Edward Gardner farm, Section 17, Perry Township.

In Lorain County the Ohio Fuel Gas Co. has a gas well in No. 1-5,573 on the A. E. Baker farm, Lot 61, Columbia Township.

In Medina County the Ohio Fuel Gas Co.'s No. 2-5,577 on the George Zacharies farm, Section 1, Liverpool Township, was dry at 2,400 feet.

In Holmes County I. E. O'Hail is drilling on the Rachael Gray farm, Section 17, Knox Township.

In Coshocton County the Ohio Gas Light & Coke Co. drilled a small gas well in No. 9 on the H. E. Arnold farm, Section 2, Mill Creek Township, from 901 to 935 feet.

In Summitt County Arthur Reeves is drilling on the N. Kandle farm, Section 36, Green Township.

In Muskingum County, Brush Creek Township, Sagle and others have an average gas well on the Orin Pedwew farm, Section 4, at 4,075 feet.

In Athens County Bowman Oil & Gas Co. has a fair gas well on the Warner J. Pinkerton farm in Fractional Section 12, Berne Township, in the Salt sand from 1,013-26 feet.

In Tuscarawas County the Status Development Co. found an average gas well on the Edward V. Steele farm, Lot 28, Sandy Township, from 4,740-48 feet. Ohio Falls Drilling & Supply Co. is shut down at 5,264 feet in the second Clinton lime formation.

Stark County

In Stark County Boettler and others brought in an exceptionally good gas well on the E. Lewis farm, Section 16, Jackson Township, from 4,287 to 4,320 feet. East Ohio Gas Co. is drilling No. 4 T. K. Harris farm, Section 34, same township, also still drilling at Nos. 2 and 3 same farm. Brendall and others are drilling No. 3 J. C. Steiner farm, same section, also No. 3 on the William Haymaker farm, Section 23, same township. In Lawrence Township, same county, Wittmer Oil & Gas Co. drilled a dry hole on the M. Rowland farm, Section 22, from a total depth of 3,908 feet. East Ohio Gas Co. made a location on the Mary A. Ginther farm, Section 3, same township. Same company is reported at 5,075 feet on the H. Starkey farm, Section 29, Paris Township, and the Timpken Roller Bearing Co. is shut down at 4,900 feet on the H. and M. Essick farm, same township.

In Knox County Hulse-Kundtz, Inc., has an average gas well in No. 6 on the J. H. Colopy farm, Section 23, Union Township, from 656 to 659 feet.

In Belmont County M. W. Fulton and others are drilling a second test on the Sarah Hughes farm, Section 33, Somerset Township.

In Guernsey County E. O. Quillan and others are reported at 3,443 feet in No. 2 on the Isaiah Cremlett farm, Section 10, Wheeling Township.

In Carroll County Turner and others

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Quemahoning Test Nearing Sand

Somerset County Operation Most Easterly In Southern Pennsylvania—Fairly Active Week In Eastern Fields

By Staff Correspondent

PITTSBURGH, Pa. Dec. 14.—In Quemahoning township, Somerset County, the test of the American National Gas Co. on the Robert Herwig farm has reached a depth of 2,500 feet and is expected to reach the sand the latter part of this week and at a depth of about 2,650 feet. Interest in this well continues as it is about a mile and a half distant from the original discovery well, the O. S. Miller, which, until the tests on the W. H. Miller and I. W. Maust farm, was the most easterly gas well in the southern Pennsylvania field, and which was east of production a good 15 to 20 miles.

In Bullskin township, Fayette County, the Dunn Mar Oil & Gas Co. jointly with the Consumers Fuel Co. has its wildcat on the Anna Grimm farm, which lies on the Chestnut Ridge Anticline, on the west flank of the arch, down to the 2,560 foot level. It is figured this well is due to hit the Speechley sand some time next week and at approximately 2,750 feet. This location has been favorably commented on by geologists and the Speechley sand is expected to prove the test, although the well will be drilled deeper into the Warren.

The past week was fairly active in the three districts of the Eastern fields with reports of 18 completions and one dry hole. The total of new producers was 8, with an initial production of 137 bbls., which is somewhat of an increase, mostly furnished by Southeast Ohio. In West Virginia, there were 8 gas wells, some fair, completed.

SOUTHEAST OHIO

The best completion was in Coshocton County where Kundtz-Huse, Inc., and others, completed a second test on the French Allen farm in Section 20, New Castle Township. It was drilled in the Clinton sand at a depth of 3,290 feet, and it produced 50 bbls. the first day after shot. Another fair well was in Guernsey County. In the NE quarter of Section 10, Wheeling Township, the scene of many good producers. E. C. Quillan and others drilled a test on the Isaiah Cramlett farm in the Niagara Lime at a depth of 3,433 feet. The well produced 40 bbls. natural the first day, indicative of a very fair well. The hole was shot with 20 quarts and after shot, the bailer was run, which stuck in the bottom of the casing, the hole having bridged over in the shot. This will be cleaned out, the well at present being killed.

In the productive Medina shallow sands, E. R. Edson & Son Co. continued their success on the George W. Packard No. 1 lease with No. 29 in Lot 4, Section 13, Chatham Township. It was drilled to 400 feet and made 35 bbls. the first day after shot. In the same section but on Lot 3, the Oko Oil & Gas Co. completed No. 51 on the Henry Essig lease to a depth of 367 feet. It made 2 bbls. the first day after shot.

In Jackson Township, Guernsey County, Keith & Salladay drilled a test on the Ed and Bertha Smith farm, Lots 35 and 36. This was completed in the Big Injun sand at a depth of only 400 feet. The test had a showing of oil at a depth of 385 to 400 feet and was shot, but 24 hours after the shot, it showed mostly water. It may make a light pumper after the water is shut in. In Harrison County, McCray and others of Jewett, Ohio, completed a test on the John Milliken farm in Cadiz Township, Section 28, in the Berea Grit at a depth of 1,250 feet. After shot it rated as a small pumper. This well is about a half mile south of production. In Jefferson County, about 2,000 feet north of production on the J. A. Blackburn farm, and in the NW quarter of Section 17, Island Creek Township, Owens & Co. drilled a test on the W. H. McClelland farm. It went to a depth of 1,250 feet and through the Berea sand which proved dry.

Gas Wells

In Hocking County, in the SE quarter of Section 32, Falls Gore Township, the Griffin Producing Co. acquired an old gas well of the Mid-West Oil & Gas Co. which had been completed in 1925. The new owners drilled it through the Clinton sand to a depth of 3,020 feet and shot it. It is now a very fair producer being rated at 1,000,000 feet of gas a day, and making with it about 3 bbls. of oil a day. Another fair test was in the NW quarter of Section 2, Rush Creek Township, Fairfield County. It was completed by the King-Johnston Oil & Gas Co. on the north line of the Charles Johnston and south line of the B. D. Kings farms and is a Clinton sand well at a depth of 2,730 feet. It is rated good for 250,000 feet a day.

Drilling In Ohio

In Washington County, which of late has been inactive, J. C. Carner and others have a rig standing on the William Bosworth farm in Newport Township. In Grandview Township, Thomas McVey and others are down 500 feet on the Walter Webber farm. In Palmer Township, F. M. Russell and others are drilling a fourth well on the Alexander Martin farm in Section 14.

In Noble County, Metcalf & Robinson have a rig standing for a second test on the Fred Springer farm in Section 28, Elk Township. In Enoch Township, Harper Brothers are drilling on the D. Morland farm, Section 31.

WEST VIRGINIA

Drilling for additional oil in West Virginia is practically at a standstill, and the activity in the gas areas has diminished considerably. During the past week no new producer was completed though one old producer, which had been abandoned, was revived. On the Ohio river, Grant district, Hancock County, the R. J. Braden Co. cleaned out and shot an old hole on the C. E. Brenneman farm which is now making about 7 bbls. a day.

Gas Wells

The best new gas wells completed were probably in the active Calhoun County and in Gilmer County. In Calhoun County, but 1 additional gasser was added. In Center district, W. H. Bickel completed No. 5 on the J. M. Bennett farm at a depth of 2,116 feet and in the Injun sand. It is rated at over 750,000 feet a day.

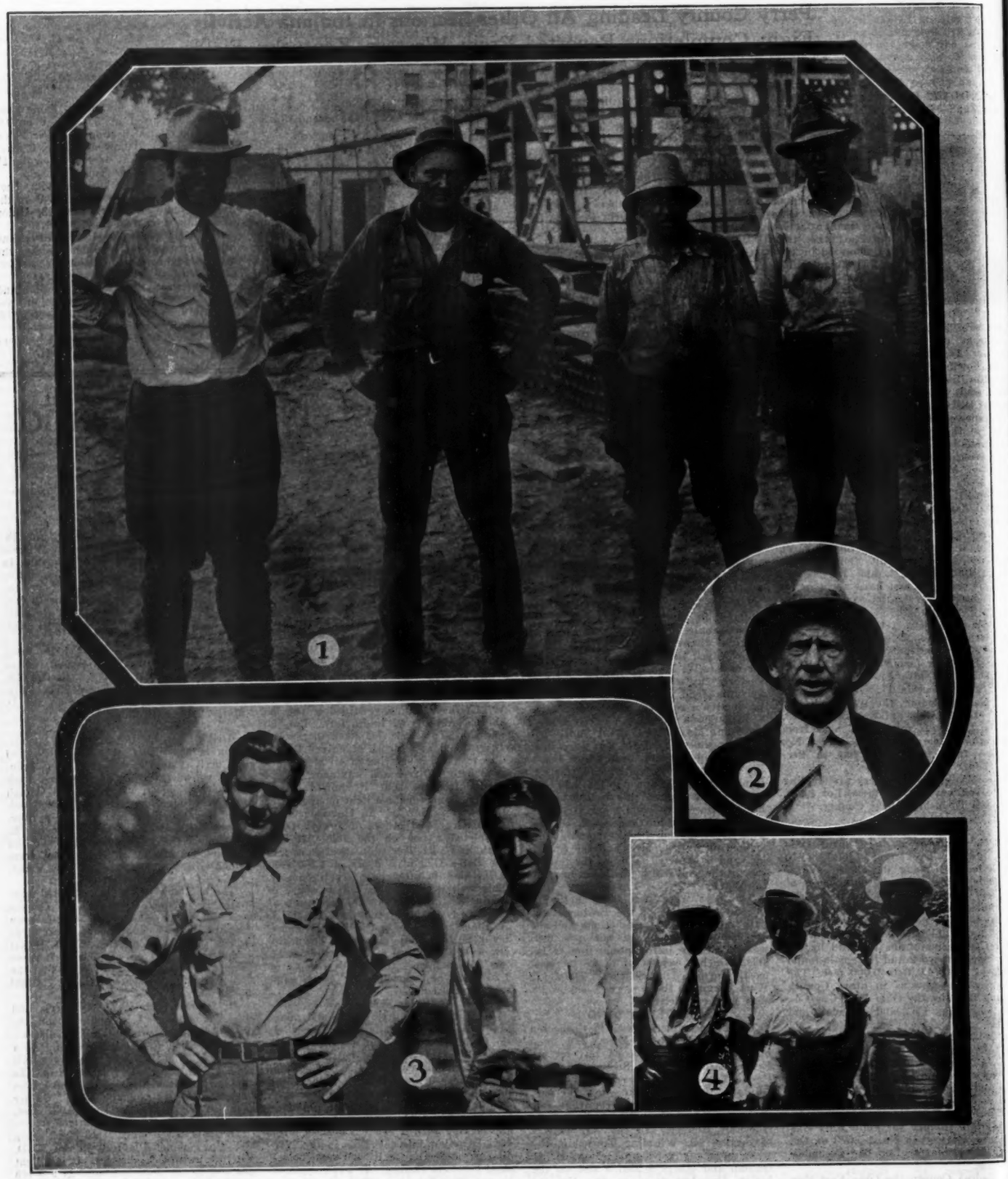
In Gilmer County, Clem Morris and others completed a second test on the W. P. Roberts farm in DeKalb district. It was drilled in the Maxon sand at a depth of 1,734 feet and is a very fair well, showing for over 800,000 feet. In the same district, A. E. Ellis and others completed a test on the O. F. Gainer farm in the Injun sand at 2,037 feet. It will make a very light gas well.

In Harrison County, the Washington Gas Co. completed a test on the E. D. Fittro farm in Coal district. It is a light gas well in the Speechley sand at a depth of 3,063 feet. In Warfield district, Mingo County, the United Fuel Gas Co. completed its No. 4328 on the Central Trust Co. lease in the Brown shale at a depth of 3,854 feet. It will make a small gas well.

On the waters of Mayberry Run, Mur-

(Continued on Page 66)

Men Who Are Active in the East Texas Oil Fields



1—Left to right: F. H. Mitchell, general superintendent; M. A. Smith, foreman; James R. Dodd, foreman; Owen Schlup, foreman, Southwestern Engineering Corporation, Longview, Tex. 2—Col. J. Lewis Thompson, land and royalty owner, president of the East Texas Home and Land Owners Association and leader in the Texas Oil and Gas Conservation Association. 3—Left to right: J. P. Allen and J. R. Ribb, Frick-Reid Supply Corporation, Willow Springs. 4—Left to right: W. A. Sniffen, assistant manager, Magnolia Pipe Line Company, Dallas, Tex.; L. J. Frick, superintendent, pipe division, A. O. Smith Corporation; and P. R. Ferrell, district representative, Caterpillar Tractor Company.

Natural Gas Industry Developments

NEW YORK COMPANIES TRANSFER PROPERTIES

NEW YORK, Dec. 14.—Representations of a group of companies controlled by the Genesee Valley Gas Co., Inc., appeared before the New York Public Service Commission with petitions for the transfer of properties and the issuance of stocks for the purpose of simplifying the corporate structure of the group which serves Churchville, Bergen, Stafford, Byron, LeRoy, Geneseo, Mount Morris, Pavilion, Avon and other New York communities.

The first case will be a hearing on a revised petition of the New York State Natural Gas Corp., all of whose stock is owned by the Genesee Valley company, to transfer its franchises, works and system to the Valley Gas Corp., and to issue 250 shares of no-par common stock and $30,000 in three-year 6 per cent notes.

In August an original petition was filed, and after hearings the commission held that the company had not shown that any public interest would be served by the transfer, although agreeing to reopen the case if the company desired to give additional proof of the property's book value and set forth that the transfer would be in the public interest.

In additional petitions, the Valley Gas Corp. is asking to issue common stock to the Pavilion Natural Gas Co., and the latter is seeking to acquire the shares. This would make the Valley Gas Corp., a new company, directly a subsidiary of the Pavilion company and owner of the properties of the present New York State Natural Gas Corp.

The system has a plant at Pavilion, N. Y., for the manufacture of gas for admixture with the natural gas which it distributes. The population served is about 25,000 and the value of properties exceeds $2,000,000 on the books of the Genesee Valley Gas Co. E. L. White of New York is president of the parent company, and C. F. Funding of Philadelphia is president of the Pavilion company. W. W. Battles and W. H. Battles, partners in Battles & Co. of New York and Philadelphia, and the officers are directors of the companies.

BRENHAM GAS RATES

BRENHAM, Tex., Dec. 14.—President Will Dobert of the Brenham Chamber of Commerce has been instructed by the directors to open negotiations with the gas company with a view of getting gas rates reduced. In the event no reduction is obtained, installation of a municipal distribution plant was urged in a petition signed by more than 500 consumers.

The petition recited that Brenham is paying $1.25 for the first 400 feet and 95 cents after that. Other towns no nearer gas fields have flat rates ranging from 65 to 75 cents, the petitioners said. Brenham is 10 miles from the Sun Oil Co.'s field at Clay Creek and 18 miles from the Raccoon Bend Field.

NORTHWEST SEEKING GAS

SEATTLE, Wash., Dec. 12.—There is much talk about the possibility of locating a supply of natural gas for the requirements of Washington and Oregon, as well as the feasibility of long distance transmission from the Kettleman Hills, a distance of 810 miles.

Willamette Basin Development Co. is to start its first well in the search for natural gas in the region around The Dalles, Ore. Moody-Seagraves Co. recently acquired 40,000 acres in this section and plans an extensive development program for 1932.

IS NAMED SECRETARY OF NATURAL GAS DEPT.

Capt. A. E. Higgins, flying field representative of the commercial section for the past five years, on December 1, became secretary of the Natural Gas Department of the American Gas Association, succeeding E. J. Stephany, resigned.

Capt. A. E. Higgins

Captain Higgins is a familiar figure throughout the natural gas area, particularly in the Southwest and California. In his capacity as field representative, he has traveled all over the United States, assisting member gas companies in sales policies and in the promotion of co-operative merchandising plans. Flying to Kansas City from the Pacific Coast, Captain Higgins recently held a conference with Maj. T. J. Strickler, chairman of the Natural Gas Department, and after discussing various phases of his new work, flew down to Dallas, Tex., where he will make his headquarters

Mr. Stephany has been secretary of the Natural Gas Department since December 8, 1928, and, except for a short time, maintained his office in Dallas. Mr. Stephany formerly held positions with the Equitable Gas Co. at Pittsburgh, Pa.

EXPLORING FRASER VALLEY

Oil and gas exploration has been centering recently in the delta district of the Fraser Valley, near Vancoucer, British Columbia. During the last few months several thousands of acres of natural gas and oil leases have been acquired in that territory extending from Chilliwack to the boundary. South of the line and in British Columbia, the International Pipe Lines, Ltd., has acquired 100,000 acres for exploration. As close to Vancouver as Lulu Island three wells producing commercial quantities of gas have been reported. International Pipe Lines, Ltd., has extended operations into British Columbia and Abbotsford, 3 miles north of the boundary.

UTILITIES CONVENTION AT TULSA

The fourteenth annual convention of the Oklahoma Utilities Association will be held in Tulsa, March 8 and 9, according to E. F. McKay, Oklahoma City, manager of the association. This convention embraces all branches of the utility industry in Oklahoma and the program offers many speakers of national prominence.

SYRACUSE LIGHTING CO. WILL USE TIOGA GAS

SYRACUSE, N. Y., Dec. 14. — The Syracuse Lighting Co., Niagara-Hudson Power Corp. subsidiary, has entered into a contract with the New York State Natural Gas Corp. to bring gas from the Tioga Field in Pennsylvania to Syracuse, according to A. Dean Dudley, president of the Syracuse Lighting Corp.

The New York State Natural Gas Corp. is a subsidiary of the Lycoming Natural Gas Co., which in turn is controlled by Standard Oil of New Jersey. Columbia Gas & Electric and the Benedum-Trees interests in Pittsburgh also have an interest in the project.

The announcement is the first of several that are expected to be made within the next few months. It is known that if the Syracuse venture is successful, as its sponsors expect it will be, natural gas will be made available for residents in other sections of New York State, and that eventually New England will be served with the gas.

It is expected that the line to Syracuse will be completed by January 1. About 1,000 workers are employed in the project at this time.

The line will connect with the pipe of Columbia Gas which runs across southern New York from Olean to a point near Newark, N. J. An interest in the home companies of Columbia Gas & Electric will later be acquired by a new holding company to be known as the Lycoming United Natural Gas Corp. This organization will be the chief subsidiary of the Lycoming Natural Gas Corp. and will control 1,500,000 acres of gas lands in Pennsylvania and New York, virtually dominating the field in those two States.

The contract to purchase the natural gas is subject to the approval of the public service commission, in which event a reduction in gas prices is promised by A. Dean Dudley, president of the Syracuse Lighting Co.

MISSOURI GAS RATES

JEFFERSON CITY, Mo., Dec. 14.—Webb City and Carterville have filed petitions with the Missouri Public Service Commission asking the commission to reconsider its recent refusal to set aside the three-part gas rate in effect in those cities. Carthage has filed a similar petition.

The public service commission recently refused to set aside the three-part rate in Carthage, Webb City and Carterville, but ordered an optional rate, which the commission believes, will mean a considerable saving to consumers. All three cities contend the saving under the option rate is not as large as is justified. The three cities want a flat meter rate, in effect several years ago.

PROTEST GAS USAGE

CASPER, Wyo., Dec. 12.—Business men of the town of Roundup, Mont., and workers in the coal mines nearby are putting up vigorous protests against the adoption of natural gas as a fuel in the town. They point out the higher price which will be charged for natural gas, and state that it would mean scrapping much highly efficient modern machinery as well as adding to the unemployment.

GAS FOR WINDSOR, CANADA

TOPEKA, Kans., Dec. 14.—The Kansas Public Service Commission has received a telegram from W. J. Baxter, at Windsor, saying a subsidiary of Cities Service Co. is seeking a franchise from Windsor, Ontario, and bordering municipalities in Canada opposite Detroit.

PANHANDLE ROYALTY OWNERS ORGANIZING

AMARILLO, Tex., Dec. 12.—Gas royalty owners of the Panhandle have organized "to present united effort in a drive to get reasonable royalty prices for gas." A committee of 10 has been appointed and instructed to conduct an investigation into operations of the pipe line companies, employ counsel and file a test suit if necessary.

Approximately 100 attended the meeting from Gray, Carson, Hutchinson, Potter, Moore and Wheeler Counties.

The purpose of the meeting was to protest the 2-cent basis on which the Texoma Natural Gas Co., whose runs from the Panhandle to Chicago, figured its first royalty checks. Most of the checks have been returned as "unacceptable" and those attending the meeting today voted unanimously to return others figured on the same basis. M. T. Johnson, Hutchinson County landowner, presided.

"Major pipe lines have a monopoly in the Panhandle Field," Johnson said. "They are attacking the State's ratable taking laws through the federal courts, claiming they are not public utilities. They are so confident of winning that royalty checks are figured arbitrarily on a 2-cent basis, while other fields are receiving from 6 to 12 cents. We must organize now if we are to get a fair price.

"The Texoma company has filed a statement with the Illinois Public Commission saying that 6 cents is being paid at the wells, plus 25 per cent of the gasoline extracted. They are paying this to the Prairie Oil & Gas Co. and should be paying it to us. A sworn statement filed with the state comptroller shows taxes are being paid on 2½ cents at the wells."

The committee voted to demand 8 cents at the wells, and recommended that no one in the field sign a contract for less than that amount. Johnson was named chairman of the committee, and Wilbur C. Hawk, vice president of the West Texas Chamber of Commerce, was named to represent that organization.

GAS TO THAW SWITCHES

The Boston & Maine Railroad has installed 1,065 gas stoves in the North Station Yards to facilitate the movement of trains in winter storms. They are designed to throw a flame across the interlocking yard switches to keep free of ice and snow.

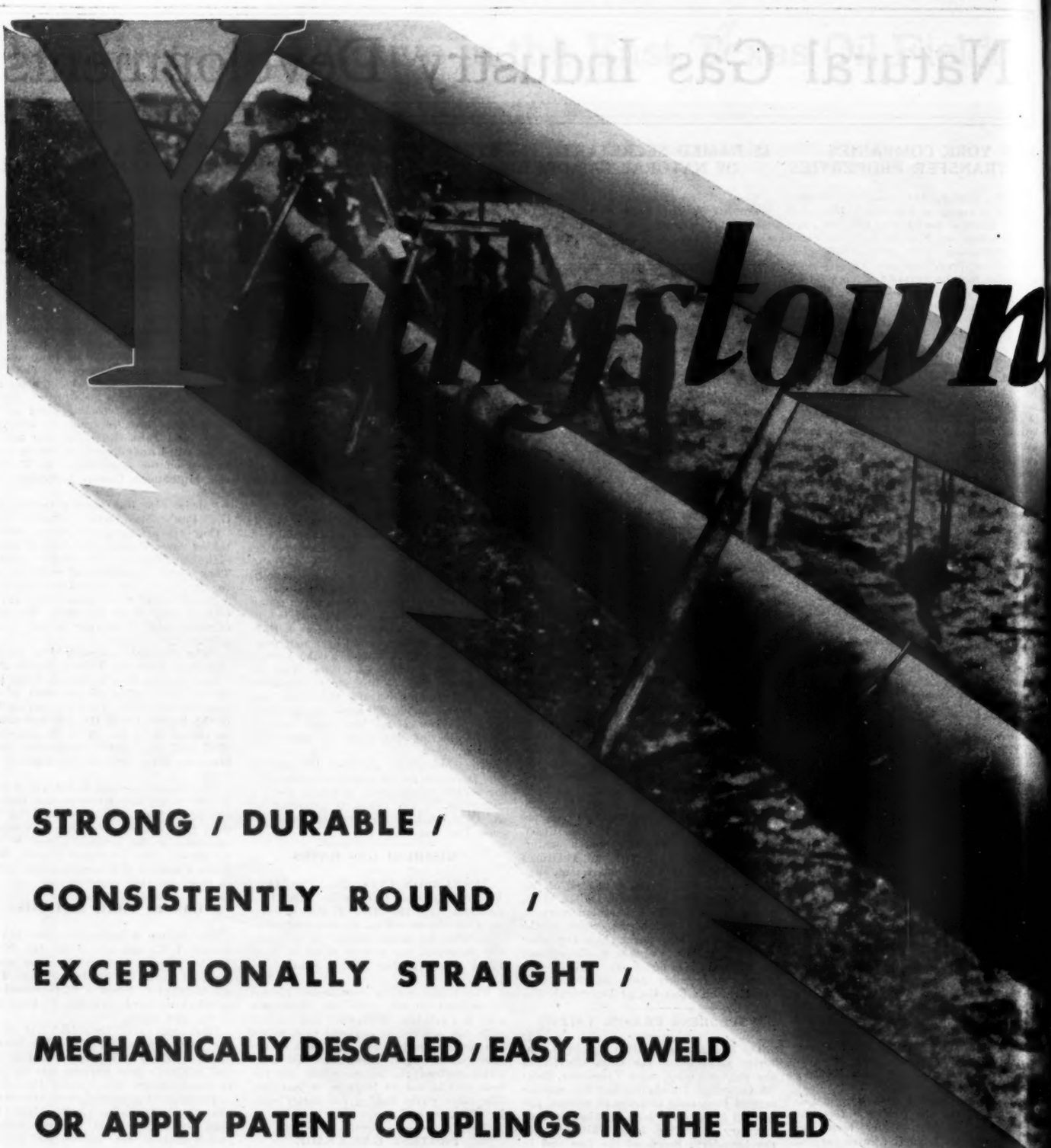
Gas pipes have been laid out to all the yard tracks and the 1,065 heating units, of which 813 have two-burner jets and 252 have four burners, are enclosed in small, square boxes under the rails.

The heaters, regulated from the switch towers, are so protected that they will burn in the wildest storms, keeping switch points hot enough to prevent their clogging or freezing.

SOUTHERN NATURAL GAS

A protective committee of holders of Southern Natural Gas Corp. convertible 6 per cent debentures due on April 1, 1944, has been formed, comprising Clarence L. Harper of Philadelphia, John T. Snyder of New York, James R. Buck of Chicago and Samuel W. White, chairman, of Chicago. Pam & Hurd of Chicago are counsel and Ralph G. Davis, Chicago, is secretary.

The committee is asking deposits of the debentures with the Continental Illinois Bank & Trust Co. of Chicago, depositary, or with the Guaranty Trust Co., New York, or the Philadelphia National Bank of Philadelphia, subdepositaries.



STRONG / DURABLE /

CONSISTENTLY ROUND /

EXCEPTIONALLY STRAIGHT /

MECHANICALLY DESCALED / EASY TO WELD

OR APPLY PATENT COUPLINGS IN THE FIELD

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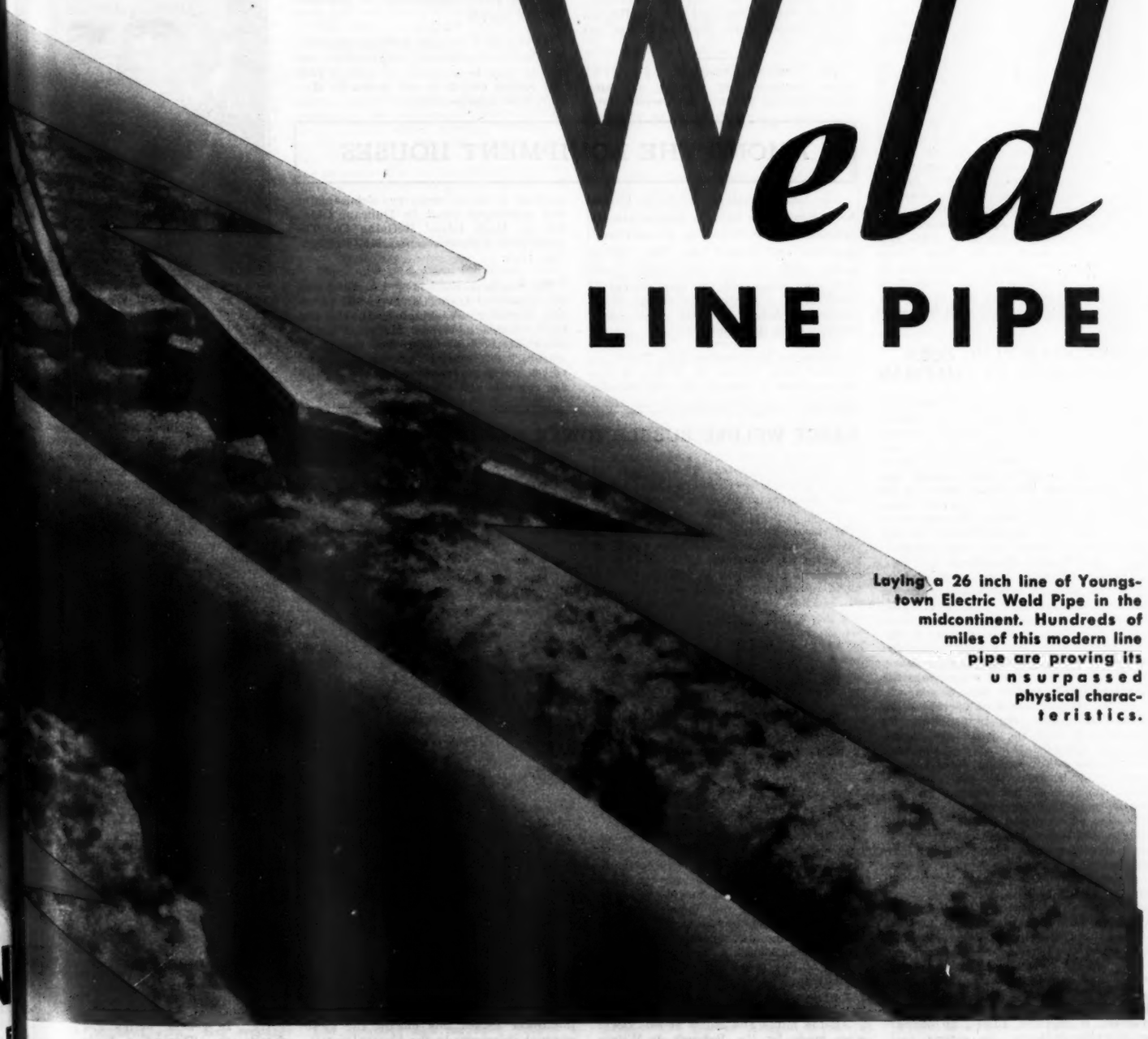
District Sales Offices: DALLAS Magnolia Bldg. • DENVER, Continental Oil Bldg. • KANSAS CITY, MO., Commerce Bldg. • LOS ANGELES, 3000 Santa Fe Ave. • SAN FRANCISCO, 55 New Montgomery St • SEATTLE, Central Bldg.

YOUNGSTOWN

FROM ORE MINE TO GAS LINE

Electric Weld LINE PIPE

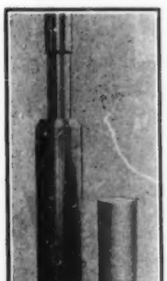


Laying a 26 inch line of Youngstown Electric Weld Pipe in the midcontinent. Hundreds of miles of this modern line pipe are proving its unsurpassed physical characteristics.

Oil Industry Equipment and Supplies

FISHING TOOL DESIGNED TO FIT ANY WELL HOLE

A fishing tool designed to fit a well hole of any size is announced by the Lebus Rotary Well Works, Electra and Willow Springs, Tex. A basket, overshot steel nipple, tap or grabs can be inserted in the core barrel for fishing work. Any one of these can be readily attached, the driller using whichever he thinks the best in the different fishing problems which confront him.



The basket is held up in the core barrel, about 12 inches from the bottom, fastened to the pipe by means of a clutch head. The tool is run into the hole to the bottom and milling is carried on until the tool is over the fish or is cored through the obstacle in the hole. The pipe is then given a one-quarter turn backward, releasing the basket, which is lowered and closed around the obstacle inside of the core barrel.

G. F. Lebus, head of the company, has invented several fishing tools. This new one is being used in the East Texas Field. They can either be purchased or rented. Headquarters for the company in the East Texas district are at Willow Springs, but another shop is to be opened in Overton.

LUBRICATED PLUG COCK DEVELOPED BY CHAPMAN

The new lubricated plug cock announced by the Chapman Valve Manufacturing Co., Indian Orchard, Mass., was designed by engineers of the company to gain the essential vertical movement of the plug through entirely mechanical means. The first action is the lifting of the plug by a threaded stem, just as in a gate valve. The degree of lift is definitely predetermined so that the clearance around the plug is a matter of very minute dimension.

When sufficiently lifted to gain clearance, the plug is rotated and a grease seal can be established between the plug and body, although this clearance is so small that there seems no reason to expect the penetration of any matter because of the entirely balanced pressure. All plugs are ground and lapped into the bodies to insure perfect fit.

In the opposite cycle of operation the stem first rotates the plug within its grease seal until the ports are closed, then the threaded stem forces the plug directly downward making a tight, leakproof joint between the plug and the body which does not depend on any grease seal. The lubrication is to provide ease of operation but is not essential to tightness. This permits use in cases of extremely high pressures or temperatures.

A detail of construction is the utilization of a lug to rotate the plug when sufficiently lifted by the stem threading. A steel dog is used to secure the stem to the plug during this rotary movement. Both these parts are of steel.

The entire assembly is simple and rugged and can be taken apart and reassembled without removing the body of the cock from the pipe line. No close adjustment is required. Lining up one assembly ring indicates the correct position of all other parts.

NOTES ABOUT TRADE LITERATURE

The Vogt "Homoweld" method of electric welding is the subject of a 24-page bulletin in colors being distributed by the Henry Vogt Machine Co., Louisville, Ky.

Wedge Products, Inc., 5208 Harvard Avenue, Cleveland, Ohio, is sending out a folder describing the Wedge split chill ring for gas or electric welding.

A 20-page illustrated booklet issued by the Master Electric Co., Dayton, Ohio, is devoted to Master geared-head motors.

The Brown Instrument Co., Philadelphia, Pa., has prepared an interesting bulletin which explains the application of the Brown flame analyzer in coal gas plants.

The Powers thermostatic radiator valve, designed for vacuum or vapor steam heating systems, is described in a bulletin prepared by the Powers Regulator Co., 2720 Greenview Avenue, Chicago.

The Mine Safety Appliances Co., Pittsburgh, Pa., is mailing a bulletin describing the M-S-A continuous carbon monoxide indicator.

The Ingersoll-Rand Co., 11 Broadway, New York, has issued an 8-page illustrated leaflet, "Air Starting Units for Internal Combustion Engines," which discusses the factors that enter into the selection of suitable machines of this class. Electric, gasoline, and belt-driven Ingersoll-Rand compressors for this service are shown.

Copies of a 16-page bulletin describing the Neilan nonrecording temperature controller may be obtained on request from the Neilan Co., Ltd., 641 Santa Fe Avenue, Los Angeles, Calif.

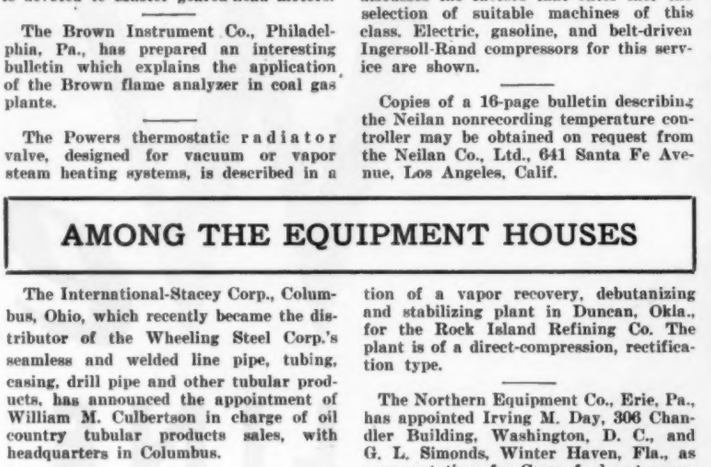
AMONG THE EQUIPMENT HOUSES

The International-Stacey Corp., Columbus, Ohio, which recently became the distributor of the Wheeling Steel Corp.'s seamless and welded line pipe, tubing, casing, drill pipe and other tubular products, has announced the appointment of William M. Culbertson in charge of oil country tubular products sales, with headquarters in Columbus.

Petroleum Engineering, Inc., Tulsa, associated with Arthur G. McKee & Co., has received a contract for the installation of a vapor recovery, debutanizing and stabilizing plant in Duncan, Okla., for the Rock Island Refining Co. The plant is of a direct-compression, rectification type.

The Northern Equipment Co., Erie, Pa., has appointed Irving M. Day, 306 Chandler Building, Washington, D. C., and G. L. Simonds, Winter Haven, Fla., as representatives for Copes feed water regulators, differential pressure control valves, pump governors, condensate drainage controls and allied equipment.

LARGE WELDED BUBBLE TOWER SHIPPED IN ONE PIECE



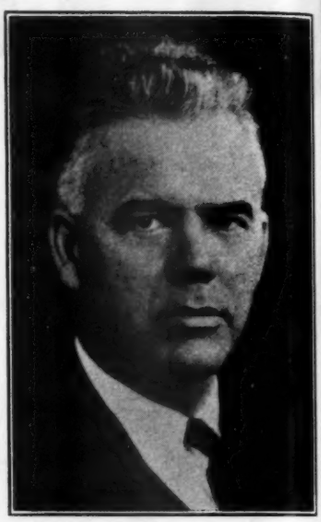
A bubble tower or fractionating column 12 feet in diameter and over 93 feet long was constructed recently by the Babcock & Wilcox Co. for the Lummus Co. to be erected in the Bayonne, N. J., refinery of the Tide Water Oil Co. The bubble tower receives mixed vapors and liquids, separating the gasoline by fractionation. To meet the demands of this process the tower is built to withstand a pressure of 150 pounds per square inch and temperature of 700° F. It weighs over 325,000 pounds.

All the joints and seams of this tower were made by the Babcock & Wilcox fusion welding process and to check the perfection of the welds photographs of the seams were made with a powerful X-ray machine employing tubes actuated by 230,000 volts. After the welding had been completed the tower was placed in an enormous furnace and given a strain-relieving heat treatment of several hours at approximately 1,200° F.

The tower was shipped in one piece on special cars over the Erie Railroad from Barberton, Ohio, a distance of about 600 miles. The length of the haul combined with the size and weight of the tower makes this one of the most unusual shipments in the history of railroading.

MEN KNOWN *in* THE EQUIPMENT FIELD

Col. Paul Weeks, recently placed in charge of the Washington, D. C., office of the Caterpillar Tractor Co., with the title of Washington manager, passed his



Col. Paul Weeks

boyhood and youth in Lincoln, Neb., and graduated with the degree of B. Sc. from the University of Nebraska. He became a member of the Phi Kappa Psi fraternity and was elected to Phi Beta Kappa. He took a course at the Massachusetts Institute of Technology, graduating in mechanical engineering, and entered the service of the Baldwin Locomotive Works, first taking an apprentice course in the shops and becoming a shop foreman and later engineer of tests and the mathematician in the design department.

Colonel Weeks' first connection with the tractor field was a private venture as an inventor and manufacturer of the "Weeks orchard tractor." He early recognized the advantages of the track-laying principle and in 1911 cast his lot with the Holt Manufacturing Co., of Stockton, Calif., one of the predecessors of the present Caterpillar Tractor Co. Shortly after the United States entered the war, Colonel Weeks, because of his specialized knowledge of automotive engineering, tractors and tractor ordnance, was called to Washington by the Ordnance Department and there began his active military life. He was made a lieutenant-colonel ordnance reserve, which commission he now holds.

Upon the close of his active military service Colonel Weeks returned to the Caterpillar Tractor Co. as general service manager.

CATERPILLAR ANNOUNCES ANOTHER SIZE TRACTOR

The Caterpillar Tractor Co., Peoria, Ill., which recently introduced its Caterpillar Fifty, now announces another new size, the Thirty-five, with 37 maximum drawbar horsepower and 41 maximum belt horsepower.

In appearance the Thirty-five closely resembles its next bigger brother, the Fifty. In general design and in many details the Thirty-five bears a close similarity to the Fifty.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

VALUE OF SURFACE SIGNS

Has the introduction of geophysical instruments in recent years put an end to the practice of looking for surface indications of petroleum? What form do these indications usually take? Can such signs of oil or natural gas as may be found on the surface be credited with causing the discovery of any of the more important oil pools?—S. L. F.

Growing use of geophysical instruments in the hunt for oil has not diminished the value of surface indications, which afford the first sign of the possible presence of petroleum. Seepages, burned-out shales, oil-stained sands and shales, "gas burns," natural gas bubbles on water, and asphalt or brea beds commonly point to the existence of petroliferous regions.

In practically every district and every province of the oil fields of the United States surface indications led to the first attempts to find oil by drilling, says Dr. Walter A. Ver Wiebe in his work, "Oil Fields of the United States." The oil spring near the city of Cuba in Allegany County, New York, was described by a Franciscan missionary in 1627. Fifty miles north of Cuba a gas seepage near Bloomfield was known to the early settlers as the "burning spring." Along the Allegheny River in western Pennsylvania the small seepages of oil were the cause of the first successful oil well drilled in the United States, the famous Drake well. Similarly the gas escaping along the Blanchard River in northwestern Ohio caused the early wells to be drilled in that part of the country. Oil exudations along the Wea River in eastern Kansas started development in the Mid-Continent area. Gas seepages called attention to the salt domes of southern Texas and aroused the interest of Captain Lucas, whose unflagging zeal eventually was rewarded by the first really big gusher well drilled in the United States. Illustrations like these, in which oil or gas seepages led to drilling might be cited in great number.

In California a different kind of surface indication drew the attention of the oil producer. There pools or small lakes of tar occur, the largest of which, called the Brea Lake, near the westerly limits of Los Angeles, is about 20 acres in extent. Here a stiff tarry substance (brea) leaked out of the oil-saturated sand and spread over the soil. Other large deposits of asphalt are known in Ventura County and along the west side of the San Joaquin Valley basin. Dikes or crevice fillings of hardened hydrocarbons are present also in California. In the eastern part of the country such dikes are rare, but one dike a mile long and about 5 feet wide, in Ritchie County, West Virginia, is described by White. A few have been reported from south central Oklahoma.

In the Gulf Coast region, where salt domes contain oil, it soon was found that sulphur at the surface, or sulphur springs, or even salt water springs, indicate a possible oil pool beneath. Another surface indication peculiar to that region is the presence of a low topographic mound. This is caused by the growth of the salt mass with which the oil is associated.

AVOIDING BOILER ACCIDENTS

There are altogether too many boiler accidents. I believe I am as careful about safety first practices as any man in the oil fields, and I use the customary precautions, but I would be glad to have any suggestions you can give me to the end of reducing the danger of boiler explosions.—R. Y. O.

In the first place, boilers made to American Petroleum Institute specifications should be bought and the A.P.I. recommendations on the use and care of oil field boilers should be observed with the utmost care. The institute has published recommendations on setting boilers, firing up, cleaning, etc., which are available in poster form, convenient for tacking on boiler house walls, in bunk houses, tool houses, etc.

Boilers should be set at least 150 feet from the well being drilled and should never be set down the prevailing wind from the boiler. Setting the boiler closer than 150 feet, or setting it to windward of the well, increases the chances of the well catching fire from its own boilers during completion or in the case of a sudden gas blowout.

Old boilers should receive a thorough inspection by a competent boilermaker before being put in service.

If the boiler feed water contains scale-forming chemicals, the water should be filtered, or treated and filtered. Boilers have been burned or have blown up because of mud or heavy scale deposits caused by poor water. This is a serious hazard in a boom oil field. Proper treatment of the water before it enters the boiler will prevent the formation of scale and the deposition of mud.

Boilers should never be operated with safety valves that are in poor condition. At least one boiler blew up in the East Texas Field because of a faulty relief valve which failed to "pop" at the set pressure, thereby permitting the steam pressure to exceed the safe working pressure of the boiler. Relief valves on all boilers, and especially high pressure boilers, should be inspected systematically and regularly and manually popped at regular intervals to determine that they will work at their set pressures.

TEST OF ALUMINUM TANKS

You told in your magazine about a year or so ago about tests that were to be made by the Bureau of Mines to find out the ability of aluminum lease tanks to resist the corrosive action of sulphur and salt water. Have there been any findings announced regarding these tests?—T. E. R.

The tests to which you refer were conducted near Borger, Tex. They show that aluminum as a material for the construction of lease tanks has promising possibilities because of its resistance to hydrogen sulphide gas, although it was found that the operating conditions of tank batteries must be controlled to avoid the corrosive action of concentrated brines on the aluminum tank plates. Ludwig Schmidt, John M. Devine and C. J. Wilhelm, of the Bureau of Mines, who conducted the tests report that at the beginning the experimental tank battery consisted of a steel oil and gas separator, an all-aluminum flow tank, two steel stock tanks and two all-aluminum stock tanks. The test tanks were set on a wooden subgrade, which consisted of the customary dirt grade on which was laid a subgrade or flooring of 1"x12" yellow pine sheathing covered with heavy tarred paper. All of the tanks were of new material and of bolted construction in accordance with A.P.I. specifications.

The test tanks were equipped with thermocouples for determining the temperatures within the tanks by means of potentiometers. In addition, a continuous record of the temperature of the vapor space of each tank was obtained by means of a recording thermometer, and routine observations were made on the tanks to obtain a continuous record of the major corrosive conditions to which the tanks were subjected under the operating conditions.

The aluminum flow tank, because of its operation, was subjected to most severe service of any in the battery. Destructive action was confined mainly to that portion of the tank which had been constantly subjected to the action of salt water or was in proximity with the steam coils. The two all-aluminum stock tanks were found to be in good condition at the end of the test except for some destructive action occurring from 4 to 6 inches above the bottoms of the tanks.

There was no apparent corrosion of the aluminum in the vapor space of the tanks, showing that aluminum is resistive to the corrosive action of hydrogen sulphide gas.

You may obtain further details regarding the tests by writing to the U. S. Bureau of Mines, Department of Commerce, Washington, D. C., and asking for the Report of Investigations 3.066, "The Use of Aluminum for Oil Lease Tanks: Part 1—Field Tests." It is sent free to applicants.

WHY WAS IT CALLED THAT?

BUSHING

"Bush" and "bushing" refer to a detachable box or lining used as a bearing to reduce friction. "Bush" is derived from the Dutch "bus," a box. A wooden box or bushing was used in early times to line the nave of a cart or carriage, and the metal liners now employed for all kinds of bearings are an adaptation of this old wooden bushing. The term "bushing" is now common in all branches of mechanics.

EFFECT OF SCALE ON ENGINE

Although scale of course interferes with the efficient operation of an internal combustion engine and to that extent represents expense, can it be said that it does any actual and permanent harm to the engine? Has it ever been ascertained just how much this scale hinders the cooling effect of the water jacket?—H. S. E.

The following answer to your question is provided by B. C. Thiel:

"As the efficient operation of an internal combustion engine depends upon the dissipation of heat from the inner surfaces of the cylinder walls and head, then any retardation of this flow of heat from the inside of the cylinder to the cooling water makes for inefficient operation.

"There have been various tests to determine the retardation of the passage of heat due to varying thicknesses of scale, but up to the present time no definite data applicable to all cases have been found. This is no doubt due to the difference in the character and composition of the scale tested. One test showed that scale one-fiftieth of an inch thick decreased the efficiency of heat transfer to 90 per cent and that of scale one-eighth of an inch thick, to 70 per cent when the heat transfer to a clean plate was rated at 100 per cent. Another authority claims that scale one-fourth of an inch thick will give an efficiency of 60 per cent.

"When the cylinder walls and head of an internal combustion engine are covered with scale, the rate of heat transfer from the hot gases in the cylinder to the cooling water is decreased. In order to dissipate the heat generated by the burning of the gases in the cylinder the temperature differential, or the difference between the cooling water and the hot gases, mut be increased. This leads to but one thing and that is the increase in the temperature of the cylinder walls and head. With a higher cylinder wall temperature, the piston is unable to get rid of its own heat through the piston rings, and consequently the temperature of the piston rises.

"Therefore, the cylinder walls, piston and rings are heated beyond a safe operating temperature. This destroys the lubrication and adds the frictional heat to the already hot surface. This increases the friction and lowers the mechanical efficiency. The piston also expands beyond the limits set by the builder and produces more friction and still further lowers the mechanical efficiency so that the engine will labor under loads that it should pull with ease.

"The lubrication is destroyed and increases the wear on the cylinder walls, piston and rings and leads to excessive maintenance costs."

ELECTRIC CORING METHOD

I have been informed that some French scientists have perfected a method of locating oil and gas using electricity and the nonconductivity of oil and gas as a basis and some triangular computation method for determining the drilling depth or the depth at which these sands are located beneath the surface. Do you have any information descriptive of this method?—W. M.

You will find the information you seek in an article which was published in The Oil and Gas Journal of February 6, 1930, entitled "Electric Coring Method Is Devised."

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

OCTANE NUMBER AND THE PRICE OF CRUDE OIL

Our company is greatly interested in the trend toward higher octane numbers of gasoline. What effect will this have in the future on the prices posted by the major pipe lines and the refiners on the several grades of crude oil in the United States?—R. F. T.

Unquestionably the trend toward higher antiknock gasoline will be reflected in the price of crude oil as such and in some cases this development may be opposite from the practice of grading oil on gravity. A crude of 39° A.P.I. may bring from 1 cent to 5 cents more a barrel than 38° oil because 1 per cent more gasoline, as a general rule, will be obtained by distillation at atmospheric pressure.

The practice of grading petroleum according to gravity started at a time when straightrun gasoline was considered by many marketers to be superior to the synthetic product from the pressure still, commonly called cracked gasoline. The demand for a fuel which will not knock in the high compression motor has reversed this position. So far as practical results are concerned, the cracked gasolines are superior to the straightrun gasolines obtained from the same crude. This fact has become so important that a refiner can afford to spend increasing sums for modern equipment to manufacture a product which will meet the antiknock rating demanded by the consumer.

Reversing the situation of a few years ago, the average refiner has difficulty at the present time in getting rid of straightrun gasoline, whereas there is an ever increasing preference for the cracked gasoline. The condition has become so important that many refiners are reforming or cracking a large part, if not all, of their straightrun distillate in order to bring up the gasoline to the required antiknock rating. This means additional manufacturing cost, greater gas loss and evaporation incident to the reforming operation. If this development continues, it is apparent that so far as the refiner is concerned, he will reach a point where a large yield of straightrun gasoline will be a liability in place of an asset. It appears that the great importance of octane rating is liable to bring us back to the practice of a flat price for the same grade of crude oil regardless of gravity.

The foregoing largely applies to the so-called paraffin and mixed base crudes; the mixed base oils constituting the greater bulk of the crude oil supply. As for the asphalt and naphthene base oils the matter is somewhat different, such oils as are found in some pools of the Mid-Continent, the Gulf Coast and California, the straightrun gasoline from these crudes has an exceptionally high octane rating. For example: The heavy Smackover oil produces a straightrun gasoline which will grade around 70 octane number as compared with an average around 45-55 for the straightrun from paraffin base crudes. This means, until we go to octane numbers much higher than at present, a price schedule for crude oils of the asphaltic and naphthenic type, based on the quantity of straightrun gasoline obtainable will continue and is justified by the relative refining costs.

There is one important phase to consider, that is the development indicating that the refinery is more and more becoming a manufacturing establishment. As our knowledge of the properties of crude oil increases and the manufacturing process is improved, we become more independent of the quality of the raw material. Close control, through scientific inspection, and flexibility of refinery apparatus have accomplished so much that the making of petroleum products, and especially gasoline, has become a matter of manufacture, rather than mere separation by the simple process of the original skimming plant.

MEASURING OIL BY VOLUME OR WEIGHT

Some countries report crude oil and the products obtained from it, in weights. What is the advantage in doing this? Isn't the volume of a barrel or gallon more convenient and practicable?—N.E.F.

It is the usual practice everywhere to measure liquids by volume and when necessary these volume units may be converted by calculation to weights. The only extensive use of weights for petroleum and its products is for determining freight charges. Even here the weight is seldom obtained by direct weighing but is derived from tables or by calculation.

There is no one standard unit either for weight or volume, but the United States barrel of 42 gallons, based on the gallon of 231 cubic inches, is more widely adopted than any other. The metric system, using the cubic meter, liter, etc., is in use in many foreign countries. The United States gallon is the equivalent of 3.7853 liters at 60° F.

The reason for measuring oil by weight is that a quantity stated in pounds, tons, kilograms, metric tons, etc., is definite and not subject to variations because of differences in coefficients of expansion and temperatures. It is also true that when stating volumes of oil, it is necessary to show either the A.P.I. gravity or specific gravity, and if weights are used this does not have to be done. However, as previously stated, liquids are commonly measured by volume. Volumes are easily found from tank strappings and extensive complications would be introduced if it became necessary to measure oil by weight.

While there is some confusion over the several volumes used for measuring petroleum in different parts of the world, there may be more with regard to weights.

AIR AND WATER ACCELERATE CORROSION

Is there not some way to use air for repressuring in place of gas to overcome chemical reaction setting up corrosion? Have been told that it is the oxygen in the air coming in contact with salt water forming acid which causes the corrosion. Why couldn't one use the gas of a gas engine? It doesn't seem there would be any oxygen in the exhaust but would there be any other harmful chemicals that might be objectionable?—F. T. W.

In the absence of large quantities of salt water it appears that most of the corrosion in oil wells is the result of either oxygen of the air or small quantities of water combining with hydrogen sulphide. These combinations may form free sulphur, sulphur dioxide and sulphuric acid. In any event sulphuric acid is the ultimate product which is aided in its corrosive effect by the mechanical action of the sand moving at the bottom of the well.

When air alone is the contributing cause free sulphur is produced by the decomposition of the hydrogen sulphide, this in turn combines with additional air, oxygen and water to form the acid. When the sulphuric acid is made in this way it acts on another portion of hydrogen sulphide to produce sulphur and sulphur dioxide. These start the circle all over again.

Whenever acid is suspected as the cause of corrosion it may be confirmed by testing the water from the well for free acid.

Corrosion of some refinery equipment is the result of a chemical reaction, or a series of chemical reactions, identical with that in wells. When water is permitted to remain in run-down or storage tanks, the bottom portions of the tanks are frequently badly corroded because of the acidity of the water coming over from the stills. A similar condition may be found in crude oil storage tanks containing salt water with traces of hydrogen sulphide.

It is difficult to apply the same measures to crude oil producing conditions that have been found beneficial for reducing corrosion on the manufacturing side. The refinery operator has made use of the alkalies, such as caustic soda, ammonia, hydrated lime and soda ash. Some crude oil operators have introduced solid caustic soda but it seems that this could be of benefit only where the volume of water in the well was very small. Hydrated lime if introduced into such a well each day might be found effective. The quantity used in stills for controlling hydrogen sulphide corrosion is approximately one-fourth to 1½ pounds per barrel of oil.

There are several special steels available which resist corrosion to a marked extent. If the exposed parts were made from such material undoubtedly some protection would be obtained.

The exhaust from a gas engine would not eliminate the acid condition but on the other hand would accelerate it through sulphur and carbonic acids present in the exhaust.

RUBBER FROM GAS

I have read your article in the September 24 Journal discussing the possibilities for making rubber from petroleum compounds. Is it not a fact that rubber has been made from gas?—D. H. E.

It was noted in my article that a product identical with natural rubber had not been made from anything by artificial means. What has been accomplished in a synthetical way is the production of a material that may be used in place of rubber for some purposes; that is, a rubber substitute. Natural gas may serve as the starting material for such work.

It is reported that at a recent meeting of a section of the American Chemical Society, at Akron, Ohio, a paper was presented by F. B. Downing, W. H. Carothers and Ira Williams announcing a synthesis in which acetylene, salt and water were used. It was stated that the product was not real rubber but an artificial substance that might be employed in some of the numerous uses now requiring rubber and in some instances probably more suitable than rubber. For example, rubber does not withstand the action of gasoline, but this new product is not acted upon by gasoline. It is also more resistant to oxygen, ozone and some other chemical compounds which attack pure rubber.

It vulcanizes with application of heat alone, differing from rubber with which sulphur is used in addition to heat for vulcanization.

The new material is a milk-white latex, consisting of particles of fully vulcanized synthetic rubber suspended in water. Natural rubber also is a white latex, but the artificial fluid was asserted to differ radically through its increased penetrating power. It can impregnate some porous articles which resist real rubber.

One of the difficulties in making synthetic rubber exactly like that from the tree is the presence in real rubber of minute quantities of foreign substances, such as proteins. During treatment of rubber these natural "impurities" produce or speed up chemical changes vital to some of the uses of pure rubber. It has not been found possible to add synthetically precisely the same "impurities" which nature supplies.

SOLUBILITY OF PARAFFIN WAX AND WAX REMOVAL

Is there any known chemical that will dissolve paraffin so that it may be used to remove wax from pipe lines, pumping wells, refinery lines and other places where wax accumulates? Please advise the best methods to eliminate this paraffin.—J. B. O.

There is no known solvent of sufficient absorption power, obtainable at low enough cost, to make it suitable for the removal of wax from operating lines, wells and similar places. Aside from the expense involved, when the large quantities of a solvent necessary to dissolve wax from oil lines are used, there is the complication that most of the solvents for paraffin wax blend freely with the oil.

Paraffin wax, either refined or amorphous, is soluble to some extent in several different liquids, the better known of which are, crude petroleum, gasoline, ether, chloroform and carbon disulphide. These are too expensive on a large scale for the purpose mentioned.

The usual practice for keeping wax in solution in an oil is to maintain a sufficient temperature. This is done in some instances by means of hot gas, hot water, or steam; the hot medium being contained in a centered pipe or intermingled with the oil as local conditions warrant. When the deposition of wax in a line is not extensive the accumulations may be removed by means of a go-devil, a scraper, or some other mechanical device.

The deposition of wax in wells, tubing, pipe lines and such has presented a serious problem in many fields. A special study of the conditions in the Panhandle of Texas was reported in an article by E. O. Bennett in The Oil and Gas Journal, October 21, 1926, page 154.

Personal Paragraphs About Oil Men

F. W. Duemler, vice president of Walworth Company, was in Tulsa en route to the Gulf Coast.

* * *

L. D. Armstrong, treasurer-manager of the Gaso Pump & Burner Company, was elected president of the Tulsa Kiwanis Club.

* * *

J. B. Wheeler, independent oil man of Houston, Tex., has returned to his home from Bradford, Pa., his former home, where he spent the summer.

* * *

W. A. J. M. Van Watershoot von der Gracht arrived in New York from Holland, bound for the meeting of the Geological Society of America in Tulsa.

* * *

T. C. Hoke, geologist with the Indian Territory Illuminating Oil Company, located at San Angelo, Tex., has been transferred by his company to San Antonio.

* * *

B. M. Nowery, general superintendent for the United Gas Public Service Corporation, has returned to his home at Houston, Tex., from a business trip to Montana.

* * *

Tom Nolen, independent operator and ranchman of San Angelo, Tex., has been appointed a deputy supervisor of the oil and gas division of the Texas Railroad Commission.

* * *

Guy M. Buchner, of Holdenville, has been elected president of the newly organized Mid-Continent Crude Oil Purchasing Company at Oklahoma City, and has moved to that city.

* * *

C. O. Moss, petroleum engineer with the Deep Rock Oil & Refining Company, has been made field superintendent of the gasoline department in the Drumright district, succeeding Paul Jones.

* * *

R. Ogarrio, vice president and general manager of The Texas Corporation, and R. A. Baker, chief geologist of The Texas Company, with headquarters in New York City, have been spending a few days in the Mid-Continent fields.

* * *

E. W. Dahlgren, of Brooks-Dahlgren Company, pipe line contractors, H. H. Heckard and E. T. Bowen, independent operators, and P. A. Thompson, general manager of the Oklahoma Portland Cement Company, have been spending the last few weeks on a hunting trip in northern Mexico.

* * *

H. W. Klein, of Tulsa, general production superintendent for the Stanolind Oil & Gas Company, and C. S. Sanders of Fort Worth, Stanolind division production superintendent for Texas, paid a visit to the district offices at San Angelo, Tex., after making an inspection trip over West Texas.

* * *

George H. Cressler, vice president of the Stacey Manufacturing Company and Stacey Brothers Gas Construction Company division of the International Stacey Corporation of Columbus, Ohio, is making a survey of the Mid-Continent area. The companies he represents are well known in the gas industry as builders of tanks and gas holders.

* * *

George Woodard, of Woodard Brothers, producers in the Nowata Field, was a visitor in Tulsa last week. Mr. Woodard reports that Nowata operators are much interested in improved and more economical means of repressuring wells in that old Bartlesville sand district so that they may be put on a paying basis in these days of low crude prices.

* * *

J. F. Pryor, manager of oil country sales of the Air Reduction Sales Company, New York City, accompanied by P. S. Julian, manager of the Oklahoma City, Okla., branch of the company, was in Tulsa and other Mid-Continent points during the past week. Mr. Pryor will visit East Texas and the Gulf Coast areas before returning to New York.

Thomas Jones, president of the Oklahoma Contracting Company, of Dallas, Tex., was in Tulsa during the past week.

* * *

E. A. Olsen, Tulsa, president of the Oklahoma Natural Gas Corporation, left for a business trip to New York and Pittsburgh, Pa.

* * *

C. L. Campbell, vice president of the E. B. Badger Company, stopped off for a visit in Tulsa on his return from a trip through California.

* * *

E. A. Lynch, sales engineer, United American Bosch Company, Springfield, Mass., called on trade in the Tulsa territory last week in connection with its distributors, the Magnito Ignition Company.

* * *

Raymond F. Baker, chief geologist of The Texas Company, with headquarters at New York City, spent several days in Houston, Tex., where before his transfer to New York City he made his home.

* * *

G. E. Lockwood, assistant chemist of the Regal Oil & Refining Co., Ltd., of Calgary, Alberta, read a paper on "Germ Processing of Lubricating Oils" at a recent meeting of the Calgary Chemical Club.

Men of the Industry

C. R. Wagner

C. R. Wagner, chief chemist for the Pure Oil Company, was born January 3, 1894, near Utica, Ohio. He graduated from the College of Wooster in 1915 and spent the next year at Purdue University as a graduate assistant in analytical chemistry. Following this he spent approximately two years in the Bureau of Soils, Washington, D. C., and one term as instructor of chemistry at the College of Wooster.

In 1918 Mr. Wagner began work for the Standard Oil Company of Indiana at Wood River, Ill., as analytical chemist and later as chief chemist of the refinery. In 1923 he went to El Dorado, Ark., as assistant general manager for the Lion Oil Company. In 1924 he joined the Pure Oil Company as assistant chief chemist and was made chief chemist in 1930. His home and his office are in Chicago.

Mr. Wagner is a member of the American Chemical Society, chairman of the Petroleum Division of the American Chemical Society, member of the American Society for Testing Materials and a member of the advisory committee on fundamental research, American Petroleum Institute.

W. G. Kessling, sales representative of the Medart Company, St. Louis, Mo., was in Tulsa last week.

* * *

G. A. Tompson, purchasing agent of the Empire Companies, Bartlesville, Okla., is in Chicago on a business trip.

* * *

W. C. Pinkerton has taken a position as industrial representative with Foster D. Snell, Inc. He was previously with the International Exposition Company.

* * *

O. V. Borden, former secretary of the Tulsa Purchasing Agents Association, sustained a broken collar bone last week as the result of being run into by an automobile.

* * *

Clifford V. Zehrung, purchasing agent, General Paint Corporation, Tulsa, has been called to Portland, Ore., his former home, because of the serious illness of his mother.

* * *

Edward T. Moore, president of the Simms Oil Company, Dallas, Tex., was re-elected as a director of the Dallas Chamber of Commerce to serve another three-year period.

* * *

B. C. Browning, Tulsa representative of Oakite Products, Inc., had the distinction of winning the "World Flight," by which the annual October sales campaign of the company was designated.

* * *

A. T. Schwennesen, formerly chief geologist for the Shell Petroleum Corporation, Houston, Tex., but who has been in California for several months, spent a short time in Houston, Tex., on business.

* * *

A. M. Culmore, of Dallas, Tex., southwestern representative of the Cincinnati Advertising Products Company, manufacturers of globes for filling stations, was in Tulsa for several days recently.

* * *

Harry J. Hosking has resigned his position in the research laboratory of the Roessler & Hasslacher Chemical Company at Niagara Falls, N. Y., to take up similar work with Foster D. Snell, Inc., Brooklyn, N. Y.

* * *

Eugene Holman, assistant to E. J. Sadler, vice president of the Standard Oil Company of New Jersey, New York, has been visiting old friends in Houston, Tex. Mr. Holman formerly was chief geologist of the Humble Oil & Refining Company.

* * *

B. G. Stevenson, for several years an official of the Sunburst Oil & Refining Company, in charge of sales, is now affiliated with M. L. McKee, sales representative of the White Eagle Oil Corporation. Headquarters of the sales agency are located at Great Falls, Mont.

* * *

William Doust, who has been a member of the geology department of the state conservation department at Muskegon, Mich., for about three years, has been transferred to the Mount Pleasant office. He will work with Fred Loveday who has been at the Mount Pleasant office for about two years.

* * *

Elrich Dobie, wife and little daughter Pat, have returned to Beeville, Tex., from Java, Dutch East Indies, where Mr. Dobie spent more than four years with the Dutch-Shell Oil Company in development work. Mr. and Mrs. Dobie stopped in California to visit relatives on the way home.

* * *

John A. McCutchin, affiliated with the Oklahoma Geological Survey, has been named by the American Gas Association Committee on Supply Men's Fund, of the Natural Gas Department, as recipient for the natural gas fellowship at the University of Oklahoma. Mr. McCutchin is a graduate of the university, class of 1928, with a B.S. degree in geological engineering.

EASTERN FIELDS

(Continued from Page 51)

phy district, Ritchie County, J. F. Deem and others completed a second test on the Johnson Heirs farm in the gas sand at 1,900 feet. It is a light gas well. In Roane County, the Federal Oil & Gas Co. completed No. 51 on the Roberts, Pell & Newman tract in the Cow Run sand which will make a light gasser.

In Gilmer County, the Pittsburgh & West Virginia Gas Co. is rigging up to start a test on the Ida Black farm in DeKalb district. In the same district, A. E. Ellis and others have hauled in the materials to start a test on the Alice Ayers farm. In Troy district, the Pittsburgh and West Virginia Gas Co. is down 1,957 feet in No. 4797 on the E. J. Gaines farm, and have No. 7570 on the G. O. Spurgeon farm drilling at 1,794 feet. In the same district, the Carnegie Natural Gas Co. is drilling on the A. C. Law farm and has reached 500 feet.

In Ritchie County, R. C. Jackson is down to 1,445 feet on the Rutherford Heirs farm in Grant district, and in the same district, Ralph Roberts and others have reached 700 feet on the P. M. McGinnis farm. In Clay district, Lucas and Mahaney are down 1,700 feet on the Mary Farley farm. In Murphy district, H. H. Allen has built a rig on the J. P. Allen farm. In this section, W. H. Bickel is rigging up on the U. S. Flaharty farm. In Murphy district, C. B. Lewis and others have a rig standing on the W. P. Baker farm. In Grant district, H. O. Davis is about in the sand in his No. 16 on the George S. Lemon farm. In Murphy district, Godfrey L. Cabot is ready to build a rig on the J. N. Eddy farm. In Union district, the Diamond Supply Co. has started a test on the Abel and W. D. Wright farm and is down 350 feet.

In Wood County, W. H. Bickel has a deep test down to 4,285 feet on the W. H. Bickel farm in Lubeck district. In Lafayette district, Pleasants County, Powell and others have reached 950 feet on the Belle Ross farm. In Washington district, W. C. Patterson is drilling at 600 feet on the Clara D. Gleason farm. T. L. Shop and others have started a test on the I. T. Gorell farm in Lafayette district.

In Marshall County, Frye & McCracken have started a test on the Clinton E. Fry farm in Cameron district and have reached 160 feet. In Liberty district, the Carnegie Natural Gas Co. has its second test on the T. O. Johnson farm drilling at the 1,450 foot level. In Monongalia County, S. W. Meals and others have their wildcat test on the George S. Davidson farm in Morgan district down to 1,202 feet and have shut down for repairs to the rig. In Battelle district, the West Penn Gas Co. has reached 2,950 feet on the Charlie Taylor farm, and has shut down for gas to continue drilling its test on the Wood Kimble farm which has reached 1,750 feet. In the same district, Eddy & Johnson are drilling at 3,150 feet on the Owen Hennen farm.

In Sardis district, Harrison County, the Pittsburgh & West Virginia Gas Co. has its second test on the Hattie L. Smith farm down to a depth of 2,420 feet. The Big Injun sand extended from 2,075 feet to 2,140 feet with a showing of gas at 2,100 feet.

A late completion was brought in by the Wayne United Gas Co. on the A. W. Wilson Heirs farm in Lincoln district. It is a Big Injun sand gasser at 1,638 feet and is rated good for 500,000 feet a day.

SOUTHWEST PENNSYLVANIA

Southwest Pennsylvania is showing more activity than for the past few months. In the Allegheny, Butler, and Washington districts, 8 wells are drilling and several rigs are standing. During the past week but one producer was added and that was an old test reopened. On Lowries Run, Allegheny County, F. P. Martin cleaned out an old well on the Ramp Heirs farm and it is at present showing for about a 1½ bbl. pumper.

In Smith Township, Washington County, the Hopewell Oil & Gas Co. has started a test on the Albert Noble farm and is down 600 feet. In the same township the William Dallmeyer test on the Thomas Brown farm is down to 1,300 feet. In North Fayette Township, Allegheny County, Schaffer & Co. have made a location for No. 3 on the Henry Schaffer farm. On the J. C. McKinney farm in Adams Township, Butler County, W. I. Goettman has reached a depth of 625 feet.

CALIFORNIA FIELDS

(Continued from Page 48)

sets. Drilling operations in the Fruitvale Field of Kern County have likewise been increasing during the past month or so and several additional projects are expected to get under way early in the new year. Some of this projected work will be on 1-acre tracts, all of which were leased up a few months ago following their relinquishment by the Western Gulf. Three drilling wells in this field should be completed within a few weeks and three more at present in the drilling stage should be finished early in February. The Jorgenson interests topped the oil sand in No. 1 Fruitvale at 3,630 feet and an 8⅝-inch water string has been landed and cemented at 3,635 feet preparatory to an early test. The Mohawk Petroleum Co. has also topped the pay in No. 1 McDermott and the water string will be landed and cemented at 3,860 feet. The Seahawk Petroleum Co.'s No. 1-B in Section 23-29-27 has not yet topped the oil sand but should do so within the very near future. Fred Turner successfully completed his No. 1 Kern in the Midway-Sunset Field early in the week and this project, finished at 1,552 feet, was brought in pumping 130 bbls. of 14.6 gravity oil per day.

GAS WELLS, DRY HOLES REPORTED FROM TIOGA

(Continued from Page 48)

found nothing to repay the investment. The Wells Corp. is below 5,090 feet on the county farm in Charleston Township, Tioga County; the Lycoming Natural Gas Co. at 5,513 feet on the Ida Wheeler farm in Delmar Township; the Allegany Gas Co., below 5,000 feet on the Davey farm in Richmond Township; Lester & Miller, below 5,035 feet in No. 1 William West in Tioga Township; Hotsinger and others, below 4,740 feet in No. 1 E. Cummings in Middlebury Township; Talleferro and others, drilling at 4,950 feet in No. 1 H. C. Smith, Tioga Township. The Pennsylvania Realty & Investment Co. are finishing up on No. 1 Middaugh, Lawrence Township, at 4,672 feet. The Oriskany sand in the productive area lies at about 4,100 feet on an average.

The question "What of the future?" is asked today as often as a year ago relative to the Tioga, Pennsylvania, gas field and is almost as difficult to answer. Dr. George H. Ashley, state geologist of Pennsylvania, says: "Certain facts are clear. First is the presence of at least one and probably two large gas fields in the Oriskany sand in Northeast Pennsylvania. Second is the irregular occurrence of the gas, an irregularity probably related to the broken character of the structure as shown by drilling in Tioga Field and by studies on the surface. Third, the presence of gas in two localities makes it appear reasonable that gas occurs in other localities. Fourth, the number of dry holes drilled close to productive wells suggests that a dry hole here and there is not full proof that gas does not exist near by. It is rather to be expected that future drilling will reveal other gas fields, some of which may be large.

Geological Factors

"In going from northwest to southwest the thickness of the beds that occur between the Catskill and the Oriskany increase. Thus, the interval from the base of the 'red beds' or 'Catskill' to the top of the Oriskany sandstone is 4,400 feet on Genesee River, 5,268 feet at Bradford, 6,500 feet at Altoona, 6,969 feet at Lock Haven, and 5,850 feet at Stroudsburg. The apparent thinning of this interval at Stroudsburg is partly accounted for by the fact that toward the east the 'Catskill red beds' include rocks much lower in the series. At Bradford the Catskill itself is only 538 feet thick, at Stroudsburg 3,650 feet thick.

"The second factor is the fact that as judged by the decreasing percentage of volatile matter in the coals of this region (Blossburg Field, 20 per cent; Barclay Field, 18 per cent; Bernice Field, 9 per cent; anthracite field, 2 to 7 per cent), the chances of large volumes of gas occurring in the rocks would appear to decrease from northwest to southeast. By the same reasoning there would appear to be little likelihood of commercial quantities of oil being found east or south of western Tioga County."

Gas Analysis

An analysis of the gas from the discovery well, No. 1 Palmer of the Allegheny Gas Co., is contained in the bulletin. The analysis taken of gas from the discovery well in the Tioga Field may be used to determine the products contained in gas from other wells. The analysis follow: Carbon dioxide, 0.0; illuminates, 0.0; oxygen, 0.1; hydrogen, 0.0; methane, 99.5; ethane, 0.0; nitrogen, 0.4; specific gravity, 58; B.t.u., 1,030. Methane is described as a gaseous hydrocarbon.

ALLRED OUSTER SUIT DEPLORED BY TEXANS

HOUSTON, Tex., Dec. 14.—Attorney General James V. Allred's ouster actions filed against 15 major oil companies operating in Texas were "deplored" in a resolution passed by the directors of the Houston chamber of commerce.

The resolution also voiced the suggestion that should it develop "interpretation of existing statutes shows interference with the proper freedom of legitimate business and expansion," steps should be taken by legislative action to remove such interference.

WACO, Tex., Dec. 14.—East Texas chamber of commerce directors adopted a resolution branding Attorney General James V. Allred's suit against a group of major oil companies operating in Texas as untimely, alarming and a threat to business.

LA.-ARK. FIELDS

(Continued from Page 38)

with 14 producing gas wells, to the Southwestern Natural Gas & Oil Co. The latter company is sponsored by New York capital. Besides taking a block of stock in the new company, the Thomason Drilling Co. received $10,000 in cash with $150,000 additional to be paid out of one-fourth of the gas produced. In the event oil is obtained on the lease, an additional $250,000 is to be paid out of production. The Crenshaw lease is located in the B. C. Jordan, John Womack and Thomas Cox Surveys, and adjoins the leases operated by the United Production Co. and Arkansas-Louisiana Pipe Line Co., on which several Trinity gas wells are located. The 14 gas wells included in the transfer are producing from 1,000 to 2,300 feet, but it is understood the new operators will drill for Trinity production, which contains a higher gasoline content, and which is found in this field around 4,700 feet.

Mississippi Test

Two deep tests in the division that are being closely watched have not made much progress during the week, due to fishing jobs. The Gulf Refining Co.'s No. 1-A Long Bell Lumber Co., Section 10-2n-16w, Clarke County, Mississippi, is fishing for drill bit and collar at 4,651 feet with the bottom of the hole in red gumbo. The Lion Oil Refining Co.'s No. 9-A Hayes, Section 4-16-15, Union County, Arkansas, is lubricating stuck drill stem with the bit in rock salt at 7,255 feet. The United Production Co.'s deep test in the Bethany area, No. 11 Werner, D. B. Lewis Survey, is drilling in shale with streaks of lime at 5,857 feet. This test is 2 miles east of other Trinity gas wells in the proven area, and failed to make a producer at that depth.

KANSAS FIELDS

(Continued from Page 36)

way near the older producing fields to determine chances of deeper production. A seismograph party is also working in Barton County. In the southeastern part of the county considerable work is being done around the Hilligoss and others well in Section 12-20-11w.

Surface and subsurface parties are reported working in Pawnee County, which adjoins Barton County on the southwest. Rush County is being considered as well as Russell County.

The Gypsy Oil Co. has recently taken considerable checkerboard acreage in Barton County in Township 19-13w, which is believed to be favorably located on structure.

Another block of 3,200 acres has also been recently leased by James Brennon in Russell County. The block centers around Section 29-13-11w, and a test well may be drilled on the acreage in a short time. A seismograph party is working in Sumner County in Township 33-3w.

Cowley County

Patton and others made location for No. 1 Sitton, NW cor. SW NW, Section 29-31-6.

Greenwood County

Simmons and others' No. 5 Winegar, SW cor. NE SW, Section 27-23-11, is spudding. Marcus and others made location for No. 1 McConnoughty, NE cor. NW NE, Section 36-24-12. York State Oil Co.'s No. 2 Rice, SE cor. SW NW, Section 22-23-11, has been abandoned at 1,990 feet. Syndicate Oil Co.'s No. 8 Shook, SE cor. NW, Section 6-24-12, is dry and abandoned at 1,797 feet.

McPherson County

Keys Brothers' No. 1 Webster, SW cor. SE NW NE, Section 21-19-1w, Ritz-Canton area, is a rig. Lasson and Shell Petroleum Corp. and others' No. 1 Unruh, NW cor. SE, Section 31-19-1w, is rigging up to deepen from 2,948 feet. Dicky Oil Co. made location for No. 2 Williams, SE cor. NW, Section 26-19-2w. No. 1 Decker "B," NW cor. SW SE, Section 35-19-2w, is moving in. Washoma Oil Co. and Shell Petroleum Corp.'s No. 2 Meeks, NE cor. SW, Section 7-20-1w, is moving in. Gypsy Oil Co.'s No. 3 Kinney, NW cor. SW SW, Section 34-20-3w, is rigging up to deepen from 3,386 feet. Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 1 Lega, SE cor. Section 30-19-1w, has been completed for 3,457,000 feet of gas in chat at 2,940-43 feet. Washoma Oil Co. and Shell Petroleum Corp.'s No. 1 Meeks, NW cor. NE SW, Section 7-20-1w, has been completed for 35 bbls. at 2,976 feet after deepening from 2,982 feet to 2,985 feet and plugging back.

Russell County

Palmer and others made location for No. 1 Pasek, C SE, Section 3-14-11w. Mid-West Refining Co.'s No. 18 Brungardt, SW cor. NW NW, Section 31-12-15w, has been deepened to 3,148 feet, plugged back 2 feet and completed for 85 bbls. The Texas Company's No. 2 Jacobs, NW cor. SW SW, Section 6-13-15w, has been deepened and completed in sand at 3,069-74 feet, producing 65 bbls.

Sedgwick County

E. B. Shawver made location for No. 1-A fee, SE cor. SW SE, Section 18-27-2, Eastborough Pool. Magnolia Petroleum Co.'s No. 2 Wheeler, NW cor. NE NE, Section 19-27-2, is an old well drilling deeper at 3,095 feet, old total depth was 2,970 feet. Derby Oil Co.'s No. 4 Eastborough, SE cor. NE NW NE, Section 19-27-2, is cleaning out to deepen from 2,971½ feet. Continental Oil Co.'s No. 1 Nagel, SE cor. NE NW, Section 19-27-2, has been deepened from 2,993 feet to 3,434 feet in Siliceous lime topped at 3,419 feet and after plugging back 6 feet it pumped 15 bbls. Fisher & Lauck's No. 6 Trustee, NE cor. NW SE, Section 19-27-2, has been completed for 740 bbls. after deepening from 2,971 feet to Viola lime 3,263-65 feet. No. 9 Trustee, SE cor. NW SE, Section 19-27-2, has been completed for 456 bbls. in Viola lime at 3,267½-69½ feet. Shawver and Derby Oil Co.'s No. 1 Soukup, SW cor. NE NW NE, Section 19-27-2, made 500 bbls. in sand 3,261-69 feet.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 39)

Humble Oil & Ref. Co.'s No. 1 Hooks, James Hamilton Sur. No. 52, 904 ft. N of SW cor. along W line of lease and 396 ft. E at right angles ... Rig.

Rio Bravo Oil Co.'s No. 10-A Settegast (W.O.), Jos. Kopman Sur. No. 44, 1,300 ft. S and 350 ft. W of NE cor. of lease ... Shut down; total depth 4,325 ft.

Rio Bravo Oil Co.'s No. 18-A Settegast, J. Kopman Sur. (W.O.) ... Drlg. shale 4,780 ft.

Rio Bravo Oil Co.'s No. 23-A Settegast, Jos. Kopman Sur. No. 44, 1,375 ft. S and 200 ft. W of NE cor "A" lease ... Derrick.

Warner-Quinlan Co.'s No. 1 Minchen (W.O.), B.B.B.&C. Sur. No. 1,028, Blk. 7 ... No report.

BLUE RIDGE—FORT BEND COUNTY

Coronado Oil Co.'s No. 2 Blakely, 430 ft. W, 575 ft. N of SE cor. of Lot 8, Blk. D, E. Drew Sur. ... Set 35 ft. of 4½-in. screen and 120 ft. 4½-in. liner 4,397 ft.; comp. flowing 30 bbls. an hour, 260 lbs. pressure, ¾-in. choke.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 30 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17 ... Shut down 60 ft.

Yount Lee Oil Co.'s No. 23 Cade, N. Fitzsimmons Sur., 300 ft. S of No. 22 ... Junked and abandoned 4,762 ft.

Yount Lee Oil Co.'s No. 24 Cade, 1,010 ft. from NE line and 1,250 ft. from NW line of N. Fitzsimmons Sur. ... Drlg. hard sandy lime 3,663 ft.

Yount Lee Oil Co.'s No. 25 Cade, N. Fitzsimmons Sur., 100 ft. due W of No. 23 ... Drlg. sand and gravel 1,153 ft.

DAMON MOUND—BRAZORIA COUNTY

Intercoastal Oil Co.'s No. 6 Wisdom (D.D.), A. Darst Sur., Blk. 51, 2,550 ft. from NE line and 1,150 ft. from NW line of 640-acre tract ... Lime and rock 3,480 ft.; drill stem stuck.

The Texas Company's No. 1 Cave heirs, 75 ft. SW, 150 ft. SE at right angles from N cor. of Lot A, Blk. 73, Wisdom Subd., A. Darst League ... Drlg. shale and lime 2,252 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 31 Moore, 3,816 ft. S and 2,432 ft. W of NW cor. of James Frazier Sur. in Mark Smith Sur. ... Drlg. rock 2,224 ft.

LOCKWOOD—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 2 George (W.O.), J. Rabb Sur. ... Killed well to set screen; sand 5,123-5,201 ft.; this well has been producing without screen in hole.

Cullen & West and Gulf Prod. Co.'s No. 1-A Lockwood & Sharp (D.D.), John Rabb Sur. ... Drlg. sticky shale 4,221 ft.

Cullen & West and Gulf Prod. Co.'s No. 4-A Lockwood & Sharp, J. Rabb Sur., 550 ft. W of No. 2-A ... Derrick.

Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract ... Sand 5,117-97 ft.; set 80 ft. of 4½-in. screen; comp. flowing 110 bbls. an hour, 275 lbs. pressure, ¾-in. choke.

Cullen & West and Gulf Prod. Co.'s No. 1 J. H. P. Davis, Robert Peebles Sur., 350 ft. S and 900 ft. E of SW cor. of A. P. George 619-acre tract ... Drlg. hard shale 5,288 ft.

Gulf Prod. Co.'s No. 1 Mary D. Booth Meyers, J. Rabb Sur., 800 ft. N of Cullen & West's No. 2-A Lockwood & Sharp ... Drlg. hard sand 4,522 ft.

NASH—BRAZORIA COUNTY

Harrison & Abercrombie's No. 15 Nash (D.D.), Thos. Aldridge League ... Drlg. sand and shale 5,608 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 123-A Cotton ... Total depth 613 ft.; set screen 592-611 ft.; comp. pumping 24 bbls. daily.

Rio Bravo Oil Co.'s No. 124-A Cotton ... Derrick.

MARKHAM—MATAGORDA COUNTY

Deering & Newman's No. 1 Hawks (W.O.), W. H. Gayner Sur., 200 ft. from S line and 100 ft. from E line of tract ... T.D. 4,150 ft; set whipstock to sidetrack 3,900 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,381 ft. W and 289 ft. S of No. 5 in Lost Lake ... Sticky shale 6,030 ft.; reaming.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Prod. Co.'s No. 4 McFaddin, J. McFaddin Sur. ... Drlg. shale 6,520 ft.

REFUGIO—REFUGIO COUNTY

Larco Gas Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2 ... Topped sand showing oil 3,686 ft. cmtd. 6⅝-in. csg.

Mission Drilling Co.'s No. 3 J. J. O'Brien, Refugio town tract, 150 ft. from N line, 150 ft. from E line of 12½-acre tract ... Sand 6,450-58 ft.; set 6 ft. screen and swabbed salt water.

Moody Seagraves Prod. Co.'s No. 2-A St. John, Refugio town tract, 600 ft. E of No. 1-A and 300 ft. from N line of lease ... Sand 5,504-18 ft.; set 15 ft. screen; comp. dry gas, 2,100 lbs. pressure, 3/16-in. choke; to kill well to deepen.

United Prod. Corp.'s No. 2-A W. J. Fox, Wm. Hews and L. Brown Sur., 2,099 ft. NE along SE line from SE cor. of lease, thence 1,690 ft. NW at right angles ... Cored sand 6,250-54 ft. and shale with sand streaks to 6,268 ft.; to make drill stem test.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 32 Miller, 925 ft. E and 480 ft. S of NW cor. S half of NW of Sec. 9-10s-9w ... Drlg. water sand 3,391 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w ... Tested dry 7,825 ft.; cutting out screen to deepen.

SORRENTO—ASCENSION PARISH

Gulf Ref. Co.'s No. 20 United Land Co., 4,040 ft. N and 760 ft. W SE cor. Sec. 15-10s-4e ... Cap rock 4,909-44 ft.; abandoned.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 23 Watkins (W.O.), 2,495 ft. W and 132 ft. N of SE cor. Sec. 13-12s-10w ... Rig up to deepen 2,844 ft.

Calcasieu Oil Co.'s No. 30 Watkins, 1,336 ft. W and 1206 ft. N of SE cor. of Sec. 13-12s-10w ... Rig.

R. E. Seiss' No. 3 Vincent, 1,195 ft. S and 1,320 ft. W of NE cor. Sec. 30-12s-10w ... Location.

R. E. Seiss' No. 2 J. M. Vincent ... Shut down 2,163 ft.

J. G. Sutton's No. 4 Irwin, 1,520 ft. N and 1,195 ft. W of SE cor. Sec. 13-12s-10w ... Rig.

Yount Lee Oil Co.'s No. 44 State, 1,110 ft. N and 1,915 ft. W of SE cor. Sec. 13-12s-10w ... Location.

Yount Lee Oil Co.'s No. 45 State, 1,320 ft. N and 810 ft. W of SE cor. Sec. 13-12s-10w ... Location.

Yount Lee Oil Co.'s No. 47 State, 1,420 ft. N and 1,468 ft. W of SE cor. Sec. 13-12s-10w ... Sand 2,873-99 ft.; comp. flowing 1,900 bbls. pipe line oil, two ¾-in. chokes.

VINTON—CALCASIEU PARISH

Marra McLean's No. 9 Gray (D.D.) ... Set 50 ft. 4½-in. screen; tested salt water; cutting and pulling screen to deepen.

Vinton Pet. Co.'s No. 1 Matilda Gray (D.D.), 48 ft. N and 89 ft. W, SE cor. SW NE, Sec. 33-10s-12w ... Rig up to deepen 3,149 ft.

EDGERLY—CALCASIEU PARISH

Emerson et al's No. 14 Hunter, 1,100 ft. N of NE cor. Bright Penn lease, 850 ft. E of No. 10, Sec. 21-9s-11w. Drlg. sand 3,002 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 732 Lee (W.O.), 965 ft. N and 3,065 ft. W of C of Sec. 29-9s-10w ... Rig up to work over.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 5 Sweet Lake (D.D.), Sec. 12-13s-8w ... Drlg. sticky shale 6,230 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

O'Hara Oil & Gas Co.'s No. 1 Neilous, J. C. Cummings Hacienda Sur., 650 ft. N of No. 1 Schroeder in 18-acre tract, north edge Mill Creek ... Derrick.

Tomacal & Boletka's No. 1 Schebajsa, 329 ft. N, 78 deg. E of N. cor. B. Dottery Sur., near center of SW line of S. F. Austin 4 League on west fork of Mill Creek ... Set 10-in. casing 120 ft.

BRAZORIA COUNTY

W. D. Southerland's No. 1 C. W. Chapman, Andrew Robinson Sur., 294 ft. from S line, 104 ft. from E line of Strip 2 ... Drlg. sand 1,370 ft.

The Texas Company's No. 2 Belcher, Harvey N. Little Sur., 1,728 ft. southeasterly from N cor. of S half of Sur., along NE line and thence 123 ft. at right angles ... Gumbo 1,268 ft.; cem. 7-in. casing on bottom.

United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peske Sur. ... Total depth 1,594 ft. in gumbo. drill stem stuck.

BURLESON COUNTY

Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ... No report.

M. O. & T. Corp.'s No. 1 Rigers ... No report.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line ... Shut down 1,275 ft.; 2 joints drill stem lost in hole.

GRIMES COUNTY

Hianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract ... Fishing 3,534 ft.

HARRIS COUNTY

Givens & Daylault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ... Drlg. shale 2,615 ft.

Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. ... Shut down 420 ft.

Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74 deg. ... S.D. for fuel 2,620 ft.

JASPER COUNTY

Next Drlg. Co.'s No. 1 Flourney, B. F. Jones Sur., 600 ft. NW of Helmerich & Payne's No. 1 Flourney ... Drlg. gumbo 2,600 ft.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 Nelson, Wm. Rice Sur., 550 ft. from N line and 50 ft. from E line of W half of 1,071-acre tract ... Dry and abandoned 6,537 ft.

John L. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 205-acre tract ... Drlg. gumbo 806 ft.

Texas Gulf Sulphur Co.'s No. 1 Junker, W. H. Smith League, 100 ft. S and 1,000 ft. W of NE cor. of tract. Sulphur test.

Texas Gulf Sulphur Co.'s No. 1 Thomas Fannett, Wm. Smith Sur., 1,950 ft. W, 1,600 ft. S of NE cor. of Thomas' 446-acre tract ... Sulphur test.

Westbury Oil Co.'s No. 4 West, 450 ft. W and 4,210 ft. S of NE cor. of T. D. Yoakum Sur ... Shut down in gumbo 600 ft.

LIBERTY COUNTY

Hamm et al's No. 1 Harvard, Dav's Hill ... Gumbo 1,015 ft.; shut down.

MATAGORDA COUNTY

United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Sur., 150 ft. W and 545 ft. N of SE cor. Blk. 53, Buckeye townsite ... Drlg. broken sand and shale 5,658 ft.

Harvey Smith's No. 1 Boker (Citrus Grove), J. V. Criswell Sur., Robbins Subd., 2,000 ft. S and 2,000 ft. E of NW cor. of Lot 14 and Lot 1 ... Drlg. hard sand and lime 5,154 ft.

MONTGOMERY COUNTY

Pevehouse Oil Co.'s No. 1 Sealey, Jas. Pevehouse Sur., 1,575 ft. N of N line of Horton & Woodson's 1,562-acre tract and 2,226 ft. E of W line of E.&W. 1,670-acre tract ... S.D. 1,856 ft.

Humble Oil & Ref. Co.'s No. 1 W. A. Renn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. ... Dry and abandoned 5,420 ft.

Drake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Thos. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur. ... Total depth 4,991 ft.; shale showing gas and light gravity oil; cem. 7⅝-in. casing 4,931 ft.; 3 joints 4½-in. screen on ground; two 750-bbl. and one 500-bbl tank and separator set up.

Stanolind Oil & Gas Co.'s No. 1 R. M. Gary, Jacob Shannon Sur., 150 ft. SW of SW cor. D. Pitts 91-acre tract in R. M. Gary 632-acre tract ... Location.

NEWTON COUNTY

R. T. Briscoe et al's No. 1 Joe Inman, approx. 1,900 ft. E and 500 ft. N of SW cor. of J. M. Scott Sur. ... No report.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 350 ft. from E line of tract ... Total depth 4,063 ft.; sidetracked 1,200-3,200 ft.; shut down.

Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ... Total depth 2,060 ft.; reaming to bottom.

POLK COUNTY

Freeman et al's No. 2 Freeman ... Shut down 3,162 ft.

T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ... Shut down 1,517 ft.

Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract ... Shut down 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ... Shut down 4,627 ft.

J. C. Dixon's No. 1 Peck, 450 ft. S, 150 ft. E of NW cor. of S half of Sec. 24, Bonnie View Ranch Subd., Estaban Lopez Sur. ... Cmtd. 12½-in. csg. 100 ft; standing.

SAN JACINTO COUNTY

G. P. Edwards' No. 1 J. R. Bennett, Cold Springs ... Shut down 750 ft.

TRINITY COUNTY

Scientific Producers Co.'s No. 1 Thompson, I.&G.N. Sur. No. 47, 50 ft. out of NE cor. of H. K. Thompson 199-acre tract ... Drlg. sand and boulders 584 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ... Sand and shale showing oil 1,255 ft.; cem. 6-in. casing 1,218 ft.; standing.

Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ... S.D. 5,025 ft.

VICTORIA COUNTY

Bunte et al's No. 1 Keeran, 2,714 ft. NE along railroad from SW line of Martin DeLeon Sur., and thence 1,600 ft. NW at right angles ... Drlg. shale 4,405 ft.

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line.... Heaving shale 5,290 ft.; cem. hole to 5,270 ft.

The Texas Company's No. 3 McFaddin, S 15 deg. W 6,200 ft. and N 75 deg. W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Cored sand showing oil 5,827-32 ft.; drill stem test rose 42 ft. high gravity oil in 2 minutes; cem. casing.

WALKER COUNTY

Hart Oil Co.'s No. 1 Thompson Lbr. Co., Jose Ortega Sur., 1,265 ft. S, 1,876 ft. W of SW cor. of J. B. Gibson's 71-acre tract ..... Shut down 1,578 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... No report.

WASHINGTON COUNTY

Moon & Yeager's No. 1 Hahn, 500 ft. from N line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3.. Drill stem stuck 3,635 ft.

Penn-Tex Oil Co.'s No. 2 Kamah Brenham, S. M. Williams Sur. ..... Lime and anhydrite 3,550 ft.

SOUTH LOUISIANA

ASCENSION PARISH

McElroy Pet. Co.'s No. 2 Lacey, 150 ft. S, 150 ft. W of NE cor. of Sec. 29-10s-4e ..... S.D. 4,515 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 375 ft.

I. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.

Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,650 ft.

Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.

EVANGELINE PARISH

Emile LeDeau's No. 1 Vidrine, 260 ft. W and 350 ft. S of NE cor. of Sec. 47-3s-2e ..... Derrick.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 25 Lake Peigneur, Sec. 58-13s-5e, 400 ft. N of No. 24 ..... Sulphur test.

Standard Oil Co.'s No. 2 Myrtle Grove-Wilbert, Bayou Choctaw, 2,040 ft. N and 600 ft. W of C of Sec. 52-9s-11e ..... Building derrick.

Standard Oil Co.'s No. 2 Gay, Bayou Choctaw, 4,500 ft. N and 600 ft. E of SW cor. SE of Sec. 52-9s-11e .... Drlg. gumbo 1,402 ft.

Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Junked and abandoned 6,103 ft.

LA FOURCHE PARISH

State Prod. Co.'s No. 1-B Stark, 1,921 ft. E and 1,040 ft. S of NW cor. of Sec. 71-15s-15e ..... Sulphur test.

State Prod. Co.'s No. 1-C Stark, 210 ft. S and 140 ft. E of NW cor. of Sec. 71-15s-15e ..... Sulphur test.

The Texas Company's No. 3 La.L.&E., Leeville, 4,439 ft. S and 468 ft. E of NW cor. Sec. 26-21s-22e ..... Sand showing oil 3,624-35 ft.; cem. 9⅝-in. casing.

PLAQUEMINES PARISH

Humble Oil & Ref. Co.'s No. 5 Cockrell-Moran, Lake Grand Ecaille, 10,377 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e ..... Location.

Humble O. & R. Co.'s No. 7 Cockrell-Moran, Sec. 14-20s-26e, 400 ft. S of No. 4 ..... Location.

POINTE COUPEE PARISH

Grand Bay Oil & Gas Co.'s No. 1 Moniotte, 10,140 ft. S and 13,450 ft. E of NW cor. Twp. 5s-11e in Sec. 94... Shut down 200 ft.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor. Sec. 3-18s-16e ..... Cored sand showing gas 3,878-82 ft.; cem. casing 3,878 ft.; drlg. plug to test.

The Texas Company's No. 5 State, Dog Lake, 2,270 ft. S and 450 ft. E of NW cor. of Sec. 5-22s-16e ..... Location.

The Texas Company's No. 2 La.L.&E., Bay Junop ..... Dry and abandoned 6,570 ft.

The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 5 State, Lake Pelto, 1,505 ft. N and 1,539 ft. W of SE cor. of Sec. 8-23s-18e..... Bldg. derrick.

The Texas Company's No. 10 State, Lake Barre ..... Location.

The Texas Company's No. 12 State, Lake Barre ..... Location.

The Texas Company's No. 14 State, Lake Barre ..... Location.

The Texas Company's No. 1 La.L.&E., Lake Barre, 2,645 ft. S and 595 ft. E of NW cor. Sec. 30-21s-20e ..... Spudded.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. No report.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

Pelican Natural Gas Co.'s No. 12 Louisiana Long Leaf Lbr. Co., Sec. 4-7-11, 330 ft. N and W of SE cor. Sec.. Set 6-in. 2,316 ft.

Smith et al's No. 1 Hale, Sec. 1-7-13, 330 ft. S and W, NE cor. NW SE ..... Arranging to set tubing and packer 2,065 ft.

A. F. Tarver's No. 2 Cutrer, Sec. 12-7-11, 330 ft. S and W, NE cor. NW NW ..... W.O.S.R. 2,550 ft.

O. J. Baird's No. 1 Duggan, Sec. 14-7-11, 328 ft. S, 648 ft. E. from center of Sec. ..... Arranging to set 6-in. 2,300 ft.

Roy Baker's No 1 Sabine Lbr. Co., Sec. 1-7-12 ..... W.O.S.R. 2,548 ft.

W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W, of C. Sec. 2-7-12 ..... W.O.S.R. 2,441 ft.

O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 ..... S.D.; W.O. 2,532 ft.

Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.

Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... Drlg. 2,210 ft.

M. J. Kissick's No. 1 Brown Lbr. Co., Sec. 1-7-11, 1,670 ft. S, 1,225 ft. E. NW cor. NE ..... Drlg. 2,000 ft.

Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... S.D. 1,606 ft.

Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E. NW cor. SW NW, Sec. 15-7-12 ..... Drlg. 4,330 ft.

L. K. McGuffin's No. 1 Bush, NW cor. NW SE. Sec. 1-7-11 ..... Arranging to reset 10-in. 300 ft; T.D. 1,800 ft.

Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... Set 6-in. 2,420 ft.

Ohio Oil Co.'s No. 11 Bowman-Hicks, Sec. 2-7-11, 330 ft. N. 990 ft. E, SW cor. NW ..... Derrick.

H. W. Perritt's No. 6 Bowman-Hicks, Sec. 2-7-12, 150 ft. S and W, NE cor. SE NE ..... S.D. 2,024 ft.

UNION PARISH

Nemours Corp.'s No. 1-C Harrell, Sec. 7-20-4e, 1,980 ft. S and E. of NW cor. ..... Set 4½-in. 2,092 ft.

Stovall Gas Co.'s No. 3 Howard, Sec. 32-20-3e, 1,320 ft. S, 1,980 ft. W, NE cor. ..... S.D; W.O. 2,335 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Ark. O. & G. Co.'s No. 4 Anderson, Sec. 21-17-15, 2,005 ft. S, 150 ft. W, NE cor. NW SW ..... Set 10-in. 150 ft; drlg. 300 ft.

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE. Sec. 4-16-15 ..... D.S. stuck 7,255 ft.

Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. 8¼ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.

Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E. SW cor. NE NE, Sec. 10-18-13 ..... Location.

Wilson & Chapman's No. 1-B Hadley, Sec. 3-18-13, 330 ft. S and W, NE cor. SE NW ..... Plugging back to 3,480 ft; T.D. 3,650 ft.

HARRISON COUNTY

Calatex Oil & Gas Co.'s No. 6 Agurs, 755 ft. N, 699 ft. W of Mile Post No. 27, W. Mack Sur. ..... Set 6⅝-in. 2,840 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. ..... S.D. 3,194 ft.

Nat. Gas. Prod. Co.'s No. 3 Floyd, 50 ft. S and 100 ft. W from No. 1 Floyd, Ben C. Jordan Sur. ..... Completed for 10,000,000 ft. Rig 2,609 ft.

Natural Gas Prod. Co.'s No. 3 Mays, 158 ft. S, 443 ft. W, NE cor. 42-5-ac. tract, Jane Thorpe Sur. ..... Rigging up.

United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur.... Location.

MISSISSIPPI

HINDS COUNTY

Ferguson-Fuller et al's No. 1 Sours et al, Sec. 34-6n-1e, 665 ft. E, 50 ft. S, NW cor. SW ..... Arranging to core 2,399 ft.

Howie & Howie's No. 1 fee, Sec. 34-6-1e, 400 ft. E, 570 ft. S, NW cor. SW SW ..... Completed estimated at 10,000,000 ft. gas 2,455 ft.

Love Pet. Co.'s No. 1 Interior Lbr. Co., Sec. 2-5n-1e, 90 ft. W, 270 ft. N, SE cor. SW ..... Derrick.

Millsaps College's No. 1 fee, Sec. 34-6n-1e, 2,225 ft. N, 1,413 ft. W, SE cor. Sec. ..... Rigging up.

RANKIN COUNTY

Anderson et al's No. 1 Brown, Sec. 12-5n-1e, 166 ft. E, 788 ft. S of center of section ..... Fishing for D.S. and liner 2,400 ft.

Baker-Owens et al's No. 1 Gulf State Creosoting Co., Sec. 12-5n-1e, 94 ft. E and 1,200 ft. N of SW cor.... Location.

Cummins & Montgomery's No. 1 Ivey, Sec. 13-5n-1e, NE Lot 10, Blk. D, E. Jackson Pl., first addn. .... Derrick pattern.

Muse & Muse's No. 1 Seany, Sec. 12-5n-1e, 2,670 ft. E, 375 ft. S, NW cor. SW ..... Drlg. 1,930 ft.

Pioneer Oil & Gas Co.'s No. 1 Green, Sec. 12-5n-1e, 180 ft. W, SE cor. SW SW ..... Set 10-in. 64 ft; drlg 845 ft.

Pioneer Oil & Gas Co.'s No. 1 C. M. Motor, Sec. 12-5n-1e, 937 ft. N and E SW cor. section ..... Drlg. 1,805 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

CLARKE COUNTY

Company, farm and location—	Remarks:
Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 10-2n-14w	Fishing for D.S. and bit 4,651 ft.

HINDS COUNTY

Atkins et al's No. 1 Crane Lawrence, Sec. 23-6n-1e, 300 ft. E, 132 ft. N, SW cor. NE SE ..... Derrick.

James Alexander, Trus., No. 1 Permanent Investment Co., Sec. 33-6n-1e, 171 ft. N, 230 ft W. of SE cor. Sec.. Set 6⅝-in. 2,462 ft.

Consumers Gas & Oil Co.'s No. 1 Interior Lbr. Co., 805 ft. E, 205 ft. N, SW cor., Sec. 1-5n-1e..... Rigging up.

Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.

Ridgeway & McGehee, Inc.'s No. 1 Moal, Sec. 24-6n-1e, 200 ft. N, 100 ft. E. SW cor. of E½ SW ..... Rigging up.

Roell Oil & Gas Co.'s No. 1 Dreyfuss, 650 ft. N, 480 ft. W, SE cor. NE, Sec. 4-5n-1e..... Derrick.

Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... Waiting orders 2,498 ft.

F. E. Stewart et al's No. 1 Miss. Cotton Seed Products Co., Sec. 4-5n-1e, 320 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. for fuel 2,759 ft.

LOWNDES COUNTY

Lowndes County Oil & Dev. Co.'s No. 1 Carr est., Sec. 34-17-16e, 1,320 ft. E, 330 ft. S, NW cor. Sec. ..... Derrick.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 3,015 ft.

McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19.. T.A. 3,793 ft.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E of SW cor. SE, Sec. 25-6n-11e ..... S.D. 840 ft. (corrected).

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e.. S.D. 1,735 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... Coring black shale 2,375-77 ft.

Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e ..... Drlg. 3,477 ft.

Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.

United Gas Public Service Co.'s No. 1 Tchula Co-Operative Store, 1,980 ft. W, 660 ft. N, SE cor. SE, Sec. 33-15n-3e ..... Dry and abd. 4,008 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... S.D. 1,380 ft.

OUACHITA PARISH

Wilson & Mitchell's No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 240 ft. S, NW cor. SW SE ..... S.D. 800 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11..... Spudded in; S.D. 50 ft.

Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,030 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10 ..... W.O.S.R. 2,750 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.

National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... S.D. 2,515 ft.

Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6.. Location.

SABINE PARISH

Abney & Davidson's No. 1 Frank Martinez, 330 ft. S and W, NE cor. NW, Sec. 11-7-13..... Location.

Beene et al's No. 1 Eternack, Sec. 2-7-13, 1,070 ft. S. 250 ft. W NE cor. ..... Drlg. 900 ft.

Beene et al's No. 1 Vincent, Sec. 6-7-10..... Rigging up.

W. M. Coates' No. 1 Stills, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Derrick.

Davidson & Grigsby's No. 1 Martinez, Sec. 2-7-13, 330 ft. S and W, NE cor. NW SE ..... Set 10-in. 100 ft; drlg. 620 ft.

Exchange Pet. Co.'s No. 1-B Louisiana Long Leaf Lbr. Co., Sec. 35-8-11, 300 ft. N and E, SW cor. NE NW.. Set 6-in. 2,360 ft.

R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Drlg. hard lime 4,015 ft.

Gehrig Oil Co.'s No. 1 Skinner, Sec. 16-8-11, 615 ft. E, 565 ft. S, NW cor. NW ..... Set 6-in. 2,230 ft.

W. P. Lacey's No. 1 Parie, 330 ft. S and W, NE cor. SW, Sec. 2-7-13 ..... Location.

T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Arranging to set 6-in. 2,243 ft.

Geo. LeGrand's No. 1 McGough, Sec. 3-8-10 ..... Derrick.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13 ... S.D. 2,039 ft.
Smitherman & Grigsby's No. 1 Gardner, 330 ft. S and E, NW cor. NE NE, Sec. 12-7-11 ..... Derrick.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. 1,200 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

ARKANSAS

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenwelder, Rhea & Kitchen, Sec. 13-17-22 ..... S.D; W.O. 814 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3 ..... S.D. 1,350 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w ... Rigged up and S.D.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Reaming 2,050 ft.; T.D. 3,740 ft.

CRAWFORD COUNTY

Ozark Nat. Gas Co.'s No. 1 Hammond, C SE SE, Sec. 29-10-29 ..... S.W. and abd. 2,560 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,369 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.
Zepp O. & G. Co.'s No. 3 Hillman, Sec. 20-10-13, 180 ft. N, 450 ft. E, SW cor. NW NE ..... Location.

DREW COUNTY

Co-Operative Development Co.'s No. 1 Ogles, Sec. 35-15-5, 330 ft. S and E, NW cor. NE NW ..... Resetting 10-in. csg.; T.D. 1,250 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... S.D. 2,800 ft.

OUACHITA COUNTY

Wilson & Chapman's No. 1 Lambert, Sec. 10-15-16, 600 ft. S, 150 ft. E, NW cor. SE SE ..... Drlg. 1,998 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.
Stephens et al's No. 1 Dierke Lbr. Co., Sec. 29-12s-31w, 150 ft. S, 330 ft. E, NW cor. NE NW ..... Rigging up.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W.O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17... S.D. 2,011 ft.
M. S. M. Oil Co.'s No. 4 Arnold & Doyle, Sec. 23-16-15, 200 ft. S and E, NW cor. SW SE ..... Completed, 50 bbls. 2,096 ft.

PIKE COUNTY

E. R. Henderson's No. 1, Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... S.D. 338 ft.

PRAIRIE COUNTY

Powell Creek O. & G. Co.'s No. 1 Kloss, NE SW, Sec. 3-4n-6w ..... Partly rigged up and S.D.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D. 1,860 ft.

SEVIER COUNTY

Tristate Oil Co.'s No. 1 McCown, Sec. 34-8-32, S½ SW ... Rigging up.

UNION COUNTY

Drillers Oil & Dev. Co.'s No. 1 Pickering, 320 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Plugging hole 2,134 ft.
H. H. Helms' No. 1 C. H. Murphy, NE cor. NW NE, Sec. 31-16-14 ..... Rigging up.
Sunby et al's No. 2 Perdue, Sec. 33-16-14, 75 ft. S, 150 ft. E, NW cor. Sec. ..... W.O. 3,247 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Bell's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... Dry and abd. 3,465 ft.
Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... S.D. 4,505 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 2,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

J. F. Morrisey's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,670 ft.
Davis & Pigg's No. 1 Roy Bryan, SW cor. Roy Bryan 33-ac. tr., Albert H. Latimer Sur. ..... S.D. 2,055 ft.
Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,922 ft.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... S.D. 4,195 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 379 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
Olds & King's No. 2 Anthony, John C. Byers Sur. ..... S.D. 1,750 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.

HARRISON COUNTY

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 250 ft. from E line of 108-ac. tr., Findley Sur. ..... S.D. 4,195 ft.
Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur.... Derrick.

MARION COUNTY

Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur.... Spudded and S.D.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... Drlg. 2,540 ft.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... Drlg. chalk 1,905 ft.
United Gas Public Service Co.'s No. 11 Werner, 1,163 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Drlg. shale and lime 5,377 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .... Arranging to whipstock; T.D. 3,127 ft.
Harry Elliott's No. 1 Pickering Lbr. Co., 1,000 ft. N, 150 ft. E, SW cor. 361-ac. tr., G. H. Patterson Sur.... Set 10-in. 108 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. ..... S.D. 3,334 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft.
Henry Mauilding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... S.D. 3,246 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... Pulling csg. to reset 3,366 ft.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... Set 8-in. 822 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... S.D. 3,457 ft.
United North & South Prod. Co.'s No. 1 Windham, 800 ft. W, 1,050 ft. N, SE cor. of Windham 171.5-ac. tr. on A. H. English Sur. ..... S.D. W. O. 3,391 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

BEXAR COUNTY

Amsden-Ingersoll-Miller's No. 1 Strumberg, 450 ft. to W line, 1,020 ft. to N line of tract, 13 miles SW of San Antonio ..... Spudded in.
J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur. ..... T.D. 1,745 ft.; drlg.
Callahan Final Oil Co.'s No. 1 B. H. Buck, 900 ft. to E line, 3,200 ft. to S. line of farm, in J. M. McGamley Sur. ..... T.D. 650 ft.; drlg.
Eckert et al's No. 1 Edwards, 150 ft. to N and W lines of farm in Martinez Sur. ..... Spudded in.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. ..... T.D. 2,250 ft.; drlg. chalk.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio ..... T.D. 1,150 ft.; S.D.
Tri-State Oil Co.'s No. 1 E. B. Carruth, 2,500 ft. from S line, 2,560 ft. from E line of tr. in F. Bolen Sur.... T.D. 780 ft.; standing 600 ft. in oil.
S. W. Blount's No. 1 S. A. Land Co., I. Perez Sur., 1,000 ft. to N line, 450 ft. to W line of tract ..... T.D. 500 ft.; S.D.
Van Duyn et al's No. 1 Bradden, 5,000 ft. N of Medina River, 350 ft. to E line of tract, 8 miles W of San Antonio ..... T.D. 650 ft.; drlg.

CALDWELL COUNTY

Cole & Moseley's No. 1 Pierce, 150 ft. to NW and SW lines of tract, Solomon Seal Sur. ..... Moving in rig.
Meyer's No. 1 G. C. and W. Walker, Solomon Seal Sur... Making location.
Lloyd North's No. 1 Keith McGee (previously carried as Ralph R. Lewis), 600 ft. from E and S lines of tr. in J. Pinchback Sur. ..... T.D. 2,450 ft.; abnd.
M. O. Rayor's No. 3 N. L. Dunlop, 350 ft. to NW line, 150 ft. to NE line of farm, Solomon Seal Sur. ..... T.D. 2,503 ft.; sulphur water in Edwards.
Charles H. Wagener's No. 1 Rodenberg ..... Location.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur..... Rigged up; standing.

DUVAL COUNTY

Frank Gravis et al's No. 2 Schallert, 425 ft. to E line, 150 ft. to S line of Blk. 10, Cain & Smith Subd. "A", Sur. No. 255 ..... T.D. 300 ft.; drlg.
Thomas & Tarver, Inc.'s No. 1 Wood-Welder, 500 ft. to N line, 4,320 ft. to W line of Sur. No. 102 ..... T.D. 2,185 ft.; fishing.

FALLS COUNTY

Vassar & Carruth's No. 1 Farias, 890 ft. to N line, 190 ft. to W line of farm in Manchaca Sur. ..... Abnd.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE Sec. 123, A. Hutxler Sur. ..... T.D. 3,515 ft.; drlg.

GUADALUPE COUNTY

Barnhill et al's No. 1 H. L. Hoffman, 450 ft. to N and W lines of farm, in John G. King Sur. ..... T.D. 800 ft.; drlg.
M. W. Elser's No. 1 Wells, 2,790 ft. to W line, 150 ft. to S line of farm in Jose de la Baume Sur. ..... Rigging up.
J. M. Scott's No. 1 E. Drumm, 250 ft. to W line, 150 ft. to S line of tract, C. Campbell Sur. ..... T.D. 450 ft.; drlg.

GOLIAD COUNTY

Camp & Stanolind's No. 3 Pettus, 2,438 ft. N, 74 de. E of No. 2 ..... Rigging up.
Plymouth Oil Co.'s No. 1 Parks, 5 miles NE Goliad .... T.D. 4,341 ft.; drlg.
Neal et al's No. 1 J. M. Pettus, 10,700 ft. to S line, 2,500 ft. to E line of Pedro Trevino Sur. ..... T.D. 3,200 ft.; drlg.
Simms et al's No. 1 J. C. Tom ..... Making location southwest of pool.

HIDALGO COUNTY

American Petroleum Engineering Co.'s No. 1 J. B. Brock, 200 ft. from S and E lines of Blk. 15, Porcion 79 ..... Derrick.
Barrett-Kanellos' No. 1, 7 miles W and N from Mission (on Monte Cristo road) ..... T.D. 730 ft.; drlg.
LaJoya Oil & Gas Co.'s No. 1 W. L. Hart, 6 miles W from Mission, north of San Fordyce ..... Kepley to spud in by Dec. 10.
Dayle L. Smith's No. 1, 13 miles W from Edinburg ..... T.D. 4,026 ft.; standing, showing gas.

JIM HOGG COUNTY

T. P. Morgan's No. 1 fee, 2,223 ft. to N line, 1,640 ft. to E line of Share 19, Palo Blanco grant ..... Rigging up.

JIM WELLS COUNTY

Stanolind O. & G. Co.'s No. 1 N. A. Hoffman, 6,800 ft. from S line, 10,000 ft. from W line of most easterly NE cor. of 7,000-ac. ranch in La Trinidad Sur. ... T.D. 6,464 ft.; abnd.
Vacuum Oil Co.'s No. 1 Seeligson ..... Location.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur. ..... T.D. 1,245 ft.; dropped till work resumes.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T.D. 2,708 ft.; standing.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T.D. 1,482 ft.; dropped till work resumes.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... T.D. 50 ft.; S.D.

KERR COUNTY

Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28. T.D. 1,312 ft.; standing.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 ..... T.D. 5,033 ft.; contract depth, S.D.

LA SALLE COUNTY

Buckley Ranch O. & G. Co.'s No. 1 Buckley, 200 ft. from S line, 330 ft. from W line of Sur. No. 37 ..... T.D. 4,503 ft.; to deepen.

LIVE OAK COUNTY

J. A. Harper's No. 1 fee, 2,130 ft. to N line, 510 ft. to E line of farm, J. Pointevant Sur. No. 37 ..... Derrick up; moving in machinery

Henderson Coquat's No. 1 Hewitt .....T.D. 400 ft.; standing.
V. G. Schimmel's No. 1 Terrell in Mark Killsely Sur.....T.D. 988 ft.; S.D.
Phillips Petroleum and Henderson Coquat's No. 1 Sanger, 150 ft. to most S of N lines, 2,000 ft. to W line of tract .....T.D. 1,550 ft.; drlg.

LEE COUNTY

Henderson & Holden's No. 1 Dismuke, 600 ft. to E line, 150 ft. to N line of farm, J. Maxmillan Sur. .....Rigging up.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T.D. 3,890 ft.; S.D.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. ....T.D. 2,300 ft.; S.D.
Chadwick et al's No. 1 Hickey, 1,000 ft. to NW line, 200 ft. to NE line of farm in Warrelman Sur. .....T.D. 20 ft.; spudded in.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Banders, School Land .....T.D. 2,284 ft.; standing.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 .....T.D. 922 ft.; twisted off drill stem fishing.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tr. in J. Keppler Sur. No. 478 .....T.D. 2,240 ft.; S.D.
J. H. Hickey's No. 1 Jungman at N end Chicon Lake...T.D. 650 ft.; abnd.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20...T.D. 825 ft.; abnd.
C. J. Webster Oil & Gas Co.'s No. 1 Adams, 2,450 ft. to N line, 150 ft. to E line of Jos. Hillemeyer's No. 25.T.D. 1,430 ft.; drlg.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodrigues Sur., near Cause .....T.D. 2,550 ft.; standing.
H. W. Elliottt's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tr. in B. Wickson Sur. .....T.D. 1,456 ft.; S.D.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale .....T.D. 2,036 ft.; S.D.
Red Bank Oil Co.'s No. 2-A J. A. Foster, 5,243 ft. to SW line, 150 ft. to NW line of farm .....T.D. 3,900 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur. .....T.D. 4,801 ft.; set csg.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW, Sec. 175 .....T.D. 2,530 ft.; S.D.

STARR COUNTY

R. B. Suttle's No. 1 Guerra, 2,000 ft. to N line, 270 ft. to W line of Porcio 110 .....T.D. 430 ft.; drlg.
Jess Williams' No. 1 Welsh, 1,120 ft. to W line, 1,500 ft. to N line of tract in Pedernal grant .....Location.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. .....T.D. 1,180 ft.; S.D.
Fuchs et al's No. 1 Shiffler, 1,000 ft. to N line, 160 ft. to E line of farm, A. C. Caldwell Sur. .. ..T.D. 515 ft.; drlg
Ray & Henze's No. 1 Hatech, in C of tr. in S. Hamilton Sur. ... .T.D. 540 ft.; S.D.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur. .....T.D. 1,420 ft.; S.D.

WEBB COUNTY

O. W. Killam's No. 2 Reiser, 1,210 ft. to W line, 150 ft. to N line, Sur. No. 1,613 .....T.D. 2,890 ft.; drlg.
O. W. Killam's No. 1 Bruni, 1,667 ft. to N line, 805 ft. to W line of Sur. No. 445 .....T.D. 1,218 ft.; drlg.
Power & Dettenhalm's No. 1 Cowan & Goss, 1,870 ft. from W line, 1,656 ft. from N line of Sur. No. 1,606..T.D. 270 ft.; drlg.
Cole Pet. Co.'s No. 4 Benavides, 2,480 ft. to E line, 160 ft. to S line of Sur. No. 1,613 .....T.D. 4,050 ft.; S.D.
Fansler, Johnson & Peacock's No. 1 Laurel, 425 ft. to N line, 600 ft. to E line of Blk. 10, Sur. 271 .....T.D. 100 ft.; drlg.

WILLIAMSON COUNTY

Burns et al's No. 1 Wilder, 1,800 ft. to N line, 200 ft. to W line of tr. in H. Owens Sur. .....T.D. 1,480 ft.; drlg.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tr. in B. C. Low Sur., S of Georgetown .....T.D. 1,595 ft.; S.D.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur. .....T.D. 1,700 ft.; S.D.
R. S. Wilson's No. 1 Speckles, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland .....T.D. 1,450 ft.; S.D.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ... .T.D. 1,600 ft.; S.D.

ZAPATA COUNTY

Ballard & Mercer's No. 1 Flores, 500 ft. from NE line, 580 ft. from SE line of Blk. 27, Porcion 37 .....T.D. 735 ft.; drlg.
F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286..T.D. 1,538 ft.; abnd.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 3, Sub., Share 7, Porcion No. 6, T. Uribe Partition of Jose V. Borrego Sur. .....Temp. abnd.
J. M. Gier's No. 1 Garza estate, 150 ft. to NW and SW lines, Blk. 12, C. A. Douglas Sub., M. Garza land in Comitas grant .....T.D. 930 ft.; drlg.
Lowe, Rogers et al's No. 3 Prudencia Benavides, 510 ft. to S line, 450 ft. to W line of Blk. 16, Sur. No. 11..T.D. 1,432 ft.; testing.
United Prod. Co.'s No. 10 Measles, 1,000 ft. to NE line, 1,550 ft. to SE line of Sur. No. 207 .....T.D. 2,065 ft.; drlg.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

DARST CREEK—GUADALUPE COUNTY

The Texas Company's No. 7 Henry Willis, 450 ft. to W line, 150 ft. to S line of farm, J. C. Darst Sur. .....T.D. 2,616 ft.; 510 bbls.
The Texas Company's No. 4 R. A. Parrish, 450 ft. to W line, 150 ft. to N line of farm, J. C. Darst Sur. ...T.D. 2,609 ft.; 775 bbls.
The Texas Company's No. 7 L. Anderson, 600 ft. to N and E lines of farm, J. C. Darst Sur. .....T.D. 2,609 ft.; 1,000 bbls.

HENNE-WINCH-FARISS POOL—JIM HOGG COUNTY

O. W. Killam's No. 2 Lopez, 150 ft. to E line, 380 ft. to N line of Sur. 255 .....T.D. 1,500 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright .....T.D. 5,400 ft.; standing.
Houston Oil Co.'s No. 24 Cartwright, 784 ft. N of No. 4, J. M. Colchado Sur. .....T.D. 2,000 ft.; drlg.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim .....T.D. 4,850 ft.; standing.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin .....T.D. 4,750 ft.; standing.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell .....T.D. 5,000 ft.; drlg.
Houston Oil Co.'s No. 1-A T. M. Harrell, 330 ft. to N and E lines of tract in H. B. Sheppard Sur. .....Location.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tr. .....T.D. 4,850 ft.; bailing.
Saxet Oil Co.'s No. 3 Donigan, north offset to Zoch's No. 1 Baldwin .....Location.
Saxet Oil Co.'s No. 5 Weil, 3,041 ft. to N line, 332 ft. to W line .....Set surface csg.

WELDER FIELD—SAN PATRICIO COUNTY

Atlantic Oil Prod. Co.'s No. 1 Welder, 500 ft. to N and W lines, Blk. 3, F. R. Portillo Sur. .....T.D. 4,639 ft.; S. D.

WHITE POINT POOL—SAN PATRICIO COUNTY

Saxet Oil Co.'s No. 18 Rachel .....T.D. 2,212 ft.; drlg.

LOS OLMOS POOL—STARR COUNTY

Hooks & Weaver's No. 3 Kelsey-Bass, 1,650 ft. to W. line, 1,300 ft. to S line, Blk. 2, Sub. of Porcions 75, 76, 77, Jurisdiction of Camargo, Sur. No. 6 .....T.D. 515 ft.; waiting on cement.
Jenkins & Powers' No. 1 Kelsey-Bass, Porcion 75 .....T.D. 210 ft.; drlg.
Los Olmos Oil & Gas Co.'s No. 6 Kelsey-Bass, 150 ft. to W and S lines of north half of Blk. 5, Porcions 75, 76, 77, Jurisdiction of Carmargo, Sur. No. 5 .....T.D. 465 ft.; abnd.
Los Olmos Oil & Gas Co.'s No. 3 Kelsey-Bass in NE quarter of NW quarter of Sur. No. 7, Subd. Porcions 75, 76, 77 .....T.D. 445 ft.; comp. 10 bbls.
Rio Oil & Gas Co.'s No. 1 Kelsey-Bass (formerly carried as Los Olmos Oil & Ref. Co.'s No. 1 Kelsey-Bass) .....T.D. 910 ft.; drlg.
Rio Oil & Gas Co.'s No. 2 Kelsey-Bass, W offset to Hooks & Weaver No. 1 .....T.D. 135 ft.; drlg.
San Marcos Oil Co.'s No. 3 Ivey, 450 ft. W of No. 2.....T.D. 423 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

Carolina-Texas O. & G. Co.'s No. 10 Barnsley, 150 ft. to E line, 200 ft. to S line of Blk. 14, Sur. 268.....Drlg.
Usher Carson's No. 4-D Webster, 150 ft. to S and W lines of NE quarter, Sur. 684 .....T.D. 2,618 ft.; workover.

COLE POOL—WEBB COUNTY

O. W. Killam's No. 22 Bruni, 1,755 ft. to SW line, 186 ft. to NW line, Sec. 9 .....T.D. 3,018 ft.; standing.

ESCOBAS POOL—ZAPATA COUNTY

Claggett et al's No. 1 Cuellar, Blk. 6, Sur. 61 .....Abnd.
Pray & Chamberlain's No. 4 Garza, Blk. 1, Comitas grant Derrick.
E. K. Bateman's No. 1 M. Garza, in Comitas grant, 200 ft. to NW line, 660 ft. to NE line of Blk. 29 .....T.D. 1,750 ft.; drlg.
F. H. Etheridge's No. 2 Bustamente, Share 35, Comitas grant .....Derrick.
Grayburg Oil Co.'s No. 1 F. G. Martinez, 150 ft. from S and W lines of 20-ac. tract in E½ of Sur. 4 ....Set csg. 1,939 ft.; tested salt wtr.
O. W. Killam's No. 11 Bustamente, 150 ft. to SE, 550 ft. to NE lines of Share 5, Fansler's partition of Comitas grant .....Rigging up.
Newton, Owens & Evans' No. 1 Garza, 200 ft. to N and W line Blk. 4, Share 1, Sur. 161 .....T.D. 150 ft.; drlg.
Pray & Chamberlain's No. 4 Garza, Blk. 1, Comitas grant .....Derrick.
Shankle & Murray's No. 2 Cuellar, 490 ft. W line, 150 ft. to N line, Blk. 5, Sur. 61 .....T.D. 1,900 ft.; drlg.
S. R. C. Oil Co.'s No. 5-E Trevino, 450 ft. to W line, 1,120 ft. to SW line, Blk. 12, Sur. No. 66 .....T.D. 1,235 ft.; in sand.
Trevino Oil Corp.'s No. 13-B Trevino, 750 ft. to S line, 150 ft. to W line, Sur. No. 412 .....T.D. 1,240 ft.; set csg.; waiting on cmt.
Winch & Billings' No. 4 Bustamente, 506 ft. to NE line, 150 ft. to NW line of 31-ac. tract out of Pal-Mar tract, Share 35, Fansler partition, Comitas grant....T.D. 1,200 ft.; drlg.

KILLAM-CUELLAR POOL—ZAPATA COUNTY

O. W. Killam's No. 47-B Cuellar, Sur. 277 .....T.D. 1,610 ft.; coring.

CHARCO REDONDO POOL—ZAPATA COUNTY

Bob & Richey's No. 26 Martinez, 1,460 ft. to NE line 855 ft. to SE line, Blk. 24, Duke sub. Charco Redondo grant .....Spudded in.
Bob & Richey's No. 27 Martinez, 870 ft. to SE line, 150 ft. to NE line, Blk. 24, Duke sub. Charco Redondo grant .....Location.

MICHIGAN FIELDS

(Continued from Page 44)

24,750.05 bbls. of oil per day. By pools production was as follows: Leaton, 705.05 bbls.; Vernon, 2,268 bbls.; Mount Pleasant east pool, 18,260 bbls.; old Mount Pleasant Pool, 3,517 bbls.; total, 24,750.05 bbls.

It is interesting to note that the east pool with an 18,260-bbl. daily production exceeds nearly three times that of the remainder of the field. The east pool was not opened up until July this year. Since that time to November 1, 17 wells were completed ranging in production from 900 to 5,000 bbls. of oil daily. The field was opened in February, 1928, in Chippewa and Greendale Townships and then expanded to Vernon and Leaton Townships. The new pool is about 3 miles east of the old Chippewa-Greendale Pool centering in Sections 9, 10, 15 and 16 of Greendale Township, Midland County.

The Michigan State Supreme Court has dissolved an injunction restraining the Pere Marquette Railroad and W. J. Sovereign of Bay City from drilling for oil along a portion of its right of way in Clare County, Michigan. John Quinn, owner of the adjoining property, alleged the right of way was deeded for railway purposes but the supreme court held this was a description rather than a restriction. Only the State, the decision held, can raise the question whether the railroad has a right to engage in other forms of business.

The Pere Marquette tracks as well as the Ann Arbor Railway tracks lie through the northern part of Isabella County and the southern part of Clare County, where during the past two years considerable proven oil and gas acreage has been developed. The court decision is expected to open the way for some prospecting here on railway right of way property.

CANADIAN FIELDS

(Continued from Page 43)

Petroleums' No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is reported preparing to make new hole after reaming and straightening out to bottom at 4,224 feet. At this depth the drill is close to the Dalhousie sand which is regarded as a potential producing horizon. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is shut down for the winter at 3,340 feet, after encountering a change of formation with strong gas pressure which caused freezing in the hole.

On Fisher Creek structure, Cotton Belt Mines' No. 1, LSD 5, Section 21-21-4w5, is reported running casing to 2,625 feet.

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is reported drilling around 5,250 feet, after cementing 6¼-inch casing at 5,225 feet. Further traces of oil and gas have been met, but nothing of commercial importance.

Border Fields

On the Milk River structure, Commonwealth Petroleums' No. 1, LSD 8, Section 9-3-15w4, is drilling at 5,082 feet and still in the lower Devonian lime, but will likely run casing before going much deeper.

In the Keho Lake area, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2 Section 17-11-22w4, is fishing at 4,925 feet.

East of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-0w4, is reported drilling below 2,750 feet and getting close to the Ellis sand. Work has been handicapped by severe weather which interfered with the water supply.

Red Coulee Producer

On the Montana end of the international Red Coulee structure, Askalta Oils' No. 2 Farbo, SE NE Section 2-37-4w, has run rods and tubing and is reported making around 200 bbls. a day settled production, with no water. This is rated the best well in the field. Hannah-Porter Oil Co.'s No. 3 Iowa Holding Co., SE SE Section 2-37-4w, has shut down temporarily after running casing to bottom at 2,315 feet, owing to severe weather. Cosmos Petroleum Co.'s No. 3 Iowa, NE SE Section 2-37-4w, spudded in recently but is also temporarily shut down. Both tests are to resume when the weather moderates.

Wainwright Deep Test

In the Wainwright Field, east-central Alberta, Montreal-Alberta Petroleums' No. 1, LSD 2, Section 15-45-7w4, has piped gas for fuel from the old Imperial-Fabyan "mystery" well and is reported deepening to the lime below 2,300 feet.

Turner Valley Conservation

Following the definite refusal of Imperial Oil, Ltd., to accept the proposed agreement for unit operation of the Tur-

ner Valley Field, and the general reluctance of the interests concerned to adopt the scheme, it is intimated the provincial government will at the forthcoming session of the legislature bring down legislation designed to conserve the Turner Valley gas production. Details of the proposed legislation have not been made public, but it is intimated it will provide means for fully enforcing the proposed maximum open flow for the field of 100,000,000 feet a day. Discussing the matter, R. G. Reid, minister of mines for Alberta, said:

"It is a pity that a voluntary scheme could not have been worked out for I am sure it would have been more satisfactory for all concerned. However, the main thing is to insure the conservation of the fuel gas. Either the gas field must be conserved as such for the use of the southern cities over a period of years, or valuable resources wasted in a short time.

"Of course we now have a much greater knowledge of the field's potentialities than when we first took over the resources, and consequently have gone much farther in plans for conservation. The government did not lay down definite rules at first, believing that the committee it named would undoubtedly provide thorough information on the field. The only stipulation was that the maximum gas flow must not exceed 100,000,000 feet."

Manitoba Gas Test

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 2, LSD 2, Section 26-2-9-wPM, is reported drilling below 1,090 feet on a test for gas.

Turner Valley Deliveries

Total deliveries from the Turner Valley Field for November amounted to 69,082 bbls., compared with 69,522 bbls. in October. While the aggregate for November was slightly smaller, the daily average, owing to the extra day in October, showed an increase from 2,243 bbls. to 2,303 bbls., an increase of 60 bbls.

Deliveries to Imperial Oil, Ltd., for November aggregated 62,082 bbls., comprising 17,433 bbls. of crude naphtha, 36,316 bbls. of discolored naphtha, and 8,355 bbls. of light crude oil. The October total of 64,084 bbls. included 18,372 bbls. of naphtha, 38,011 bbls. of discolored naphtha, and 7,701 bbls. of light crude. Deliveries to Regal Oil & Refining Co. decreased from 5,438 bbls. in October to 4,116 bbls. in November. The Bell Refining Co., which did not start operations till the middle of November, took 2,832 bbls. in the two weeks' period.

The outstanding naphtha producer in the field was Mercury Oils' No. 1 with 5,643 bbls. Southern Lowery's No. 3, a new producer, ranked second with 5,397 bbls., and Merland Oils' No. 1, in the far south, increased its production from 3,504 to 4,832 bbls. The largest light crude producer was Model Oils' No. 1 in the North Turner Valley, with 5,099 bbls., while Hylo Oils' No. 1, which is deepening to the lime, swabbed 2,174 bbls. of light crude while drilling.

Saskatchewan Operations

Simpson Oil Co. of Simpson, Saskatchewan, has arranged for a salt plant to handle the brine from No. 1 well in Section 9-29-25w2. The plant will probably be erected this winter, and drilling for oil in No. 2 well is expected to start next spring.

Ontario Drilling

In Middlesex County, Ontario, Union Gas Co.'s No. 2 Ekfrid, NE cor. Lot 13, Concession 3, Ekfrid Township, has finished at 1,772 feet with a hole full of water, and is being plugged. This is the third unsuccessful test drilled by the Union Gas Co. in the Ekfrid-Caradoc area of Middlesex County, east of the Newbury gas area. Earlier in the year Ekfrid's No. 1, to the southeast, Lot 7, Concession 5 South, Ekfrid Township, was carried through the Trenton to the granite at 3,582 feet without a show. Union's No. 2 Ekfrid was drilled to the north, in Lot 10, Concession 6 Caradoc Township, and was abandoned in the "big red" horizon at 1,905 feet. Union's No. 3 was south of No. 2 and west of No. 1. Completion of No. 3 marks also the completion of the Union Gas Co. drilling program for 1931. No announcement has been made as to the company's further plans for development of the Middlesex area.

In Kent County, Olga Oil & Gas Co.'s No. 4, NE Lot 18, Concession 9, Raleigh Township, finished at around 1,660 feet and was shot with 300 quarts. The shot increased a small flow of gas to something over 200,000 feet a day. The well appears to be the smallest of the three producers drilled by the Olga Oil & Gas Co. in this area. Olga's No. 1 showing a shot production of around 582,000 feet and No. 3 a shot production rated as high as 750,000 feet. No. 2 was a dry hole. Olga's No. 3 has some oil, and may develop a small commercial production. The gas production is being taken by the Union Gas Co. Tentative location has been made for Olga's No. 5 on the Jenner Siderond about 1,500 feet northwest of No. 4 and west of No. 3.

In the Tilbury Field, Ralph Dawson's No. 1 Smart farm, Lot 4, Concession 16, Tilbury East Township, is being equipped with siphon to control water, which in this section accompanies the gas. Dawson's No. 2, SW Lot 3, Concession 15 Tilbury East, has been located but is not yet moving in. It will be another test of the Tilbury gas sand.

Acme Gas & Oil Co. of Toronto reports for November a production of 14,717,000 feet of gas from its Ontario wells. Production is taken by Dominion Natural Gas Co.

Turner Valley Shot

In Central Turner Valley, Dome Oils' No. 2, LSD 16, Section 36-19-3w5, was shot recently in the lime at 5,390 feet. Following the shot, the hole bridged, and drillers are now cleaning out preparatory to a production test. The well may be a small naphtha producer.

British Columbia

In the Cariboo district, British Columbia, Frank Patrick Syndicate's No. 1 on the Australian ranch near Quesnel will resume shortly at about 1,400 feet, contract having been let for deeper drilling. The well is reported to have got some shows of oil before the shutdown several months ago.

OKLAHOMA FIELDS

(Continued from Page 34)

cor. NW SE Section 32-12-10, was spudding.

In the southern part of Okfuskee County, F. Havel and others' No. 1 Likowski, CSL NE SW Section 23-11-11, in the Lyon-Quinn area, has resumed drilling operations at 1,000 feet after being shut down for some time. Fleming and others' No. 2 Johnson, CSL SE SE Section 2-10-11, were spudding. Wells and others' No. 1 Stephenson, NW cor. NE SE Section 14-10-11, was drilling at 1,150 feet.

Seminole's Latest Gauge

The complete 10-day gauge of the Greater Seminole area which was taken during the month of November and the previous 10-day gauge taken last March were as follows:

Pool—	Potential—Mar., bbls.	Potential—Nov., bbls.
Allen	21,328	18,629
Bowlegs	29,388	27,096
Carr City (settled)	6,526	6,790
Earlsboro (proper)	30,184	25,229
Earlsboro (townsite)	6,583	3,694
East Earlsboro	28,769	21,326
Little River	48,513	41,345
East Little River	11,479	4,298
Maud	4,632	3,527
Mission	16,127	16,342
Sasakwa	4,245	2,844
Searight	8,762	6,941
Seminole	36,915	24,561
East Seminole	3,150	2,500
St. Louis	39,644	35,401
West Asher	29,561	8,352
Carr City (flush)	43,477	31,737
South Earlsboro	13,946	11,500
East Earlsboro (extension)	570	522
Konawa	21,392	13,307
Fish	7,000	5,118
West Seminole	9,046	8,272
Wewoka Townsite	75,237	35,980
Total	485,874	355,311

Some of the above pools did not take a potential gauge in March, and those pools are listed with their last previous potentials. The schedule outlined by the Oklahoma Corporation Commission allowed the operators to use any method they desired in taking the potential gauges, whether by pumping, flowing, air or gas lift, or swabbing in, obtaining the production the wells. The gauges were checked by a field force under the direction of C. Dimit of the Phillips Petroleum Co. and the umpire's assistants, and are believed to be accurate.

The entire Greater Seminole area under the 2 per cent decline has a December potential of 335,043 bbls. a day. Under the Corporation Commission orders the operators are allowed to produce 50 per cent of the potential with the exception of a few flush areas. The stripper and Class "A" wells and production are included in the report.

Reduction of Acreage

During the year oil companies have been reducing their acreage in the wildcat areas and the end of the year will see the companies with fewer leases than in any other year in the last five. Major companies with large lease holdings in the northern and western parts of the State have surrendered blocks, and checkerboard spreads. Rentals reduced on many thousands of acres.

State school land and Indian leases have been the last to be surrendered and it is estimated that 25 per cent of Indian tracts on the west side of the State have been turned back. Thousands of acres in other parts of the State have also been dropped. It is only within the last few months that the leases on state school lands have been canceled.

Little or no developments are expected in wildcat territory during the winter months. The semiwildcat and the close to other production are expected to receive the developments during the coming months. The only areas that are expected to be developed are the Greater Seminole and the territory around the Oklahoma City Field, and in other areas near production.

Lease prices are on or near bottom, according to leasemen that have been buying acreage for the last 10 years. Royalty prices have followed suit. There has been some buying of leases and royalty in the proven and semiproven areas and around wildcat tests.

An example of the reduced prices is pointed out that today tracts can be had at $7.50 to $12 an acre that were bid for at $50 and $75 two years ago. In Oklahoma County leasing has been active on the southwest edge of the field and inside of city limits. There has been little acreage surrendered in Oklahoma County outside of the Mid-Kansas Oil & Gas Co. Nicoma Park block in Township 12-1w. Rentals have been reduced on part of the wildcat acreage, but the entire county is considered prospective territory.

School land leases recently surrendered in Pottawatomie County include the following, and it is expected other tracts will be surrendered: Shell Petroleum Corp. has dropped leases on SW of Section 36-9-3, the SE Section 16-9-3, NE Section 16-8-3, the SW Section 16-10-2, the NW Section 36-10-2 and N half NE Section 16-10-2. Mid-Kansas Oil & Gas Co. has dropped the NE Section 36-9-2, the SW Section 16-9-2, SW of Section 16-7-2, the SE Section 36-8-3, the NW Section 16-9-3, NW Section 16-8-4.

Creek County

Kirchner and others made location for No. 2 Strip, SE cor. SW SE NE, Section 13-19-8. Gled Oil Co.'s No. 2 Reabe, SW cor. SE SW, Section 25-19-8, is a machine rigging up. No. 2 Hollingsworth, SW cor. SE SE, Section 20-19-9, is also rigging up. Holmes Oil Co. moved a machine in for No. 1 S. Deere, SW cor. SE SE, Section 25-19-9. Bryan Petroleum Co. has a machine on the location for No. 1 Boyd, NW cor. Section 28-19-9. Wise & Archer's No. 1 Cruel, SW cor. NW SE, Section 36-17-11, is a machine. Gled Oil Co.'s No. 1 McGee, NE cor. NW NW, Section 36-19-8, has been completed for 25 bbls. in sand 2,221-55 feet. N. D. Gentner and others' No. 1-A Watashe, SE cor. SW, Section 4-17-10, has been abandoned at 1,110 feet. A. B. Ice's No. 1 Jacanta, NE cor. NW NE, Section 19-17-10, made 1,500,000 feet of gas in sand 2,269-82 feet. Bryan Petroleum Co.'s No. 2 Bucktrot, C SW NW, Section 35-17-10, has been completed for 2,000,000 feet of gas in sand 1,630-47 feet. Wilrough Oil Co. and others' No. 2 Stewart, CWL NW NE, Section 32-17-12, was shot with 60 quarts in sand at 1,550-1,621 feet and completed for 15 bbls. C. G. Tibbens' No. 1 A. Wilson, NE cor. NW SW, Section 18-14-9, has been completed for 175 bbls. in sand at 2,342-63 feet.

Marshall County

D. B. Taliaferro and others' No. 1 fee, NW cor. SE SE NW, Section 34-5s-5, has been abandoned at 945 feet.

Muskogee County

Mack Drilling Co.'s No. 6 D. Richards, CEL SE NE, Section 33-16-15 is cleaning out to deepen from 1,256 feet. No. 4 Peterson, SW cor. NW SW NW, Section 34-16-15, is spudding. R. B. Hash and others moved a machine in for No. 2 L. Grayson, SE cor. NW NW SE, Section 35-16-15. B. W. Christian and others' No. 1 C. Morrison, C SW NW, Section 15-15-17, is rigging up. J. V. Dunbar and others' No. 1-A E. Spaulding, NW cor. SE SW, Section 4-15-18, is rigging. E. Price's No. 1-A R. James, CNL NW NE, Section 19-14-17, is dry and abandoned at 1,475 feet.

Oklahoma County

Griscom Oil Co. is building the rig for No. 1 Turner, NW cor. SW SE, Section 34-12-3w, Block 23, Lot 18, Phillips-Meade addition, Oklahoma City Pool. R. A. McArther and others' No. 1 Pruitt, SW cor. NE NW SE, Section 22-11-3w, Block 3, Lots 13 and 24, Lot 5 Hill's subdivision of Fletcher Heights, is a rig under construction.

Continental Oil Co. and others' No. 1 Canning, CEL SE SE SE, Section 22-11-3w, has been completed for 6,075 bbls. in four and three-quarter hours on a 4-inch choke, producing from Wilcox sand topped at 6,452 feet, total depth 6,561 feet. Indian Territory Illuminating Oil Co. and others' No. 1 South Glendale, NW cor. Section 26-11-3w, topped Wilcox sand at 6,455 feet, drilled to total depth of 6,572 feet and made 5,041 bbls. in four hours. No. 1 Little, NE cor. Section 27-11-3w, flowed 7,105 bbls. in six hours from Wilcox sand topped at 6,475 feet, total depth 6,592 feet.

Okfuskee County

Burke-Greis Oil Co. has the rig up for No. 1 Grayson, NE cor. NW SE, Section 32-12-10. W. A. Fleming and others' No. 2 P. Johnson, CSL SE SE, Section 2-10-11, is a machine rigging up. Wells and others' No. 1 Stevenson, NW cor. NE SE, Section 14-10-11, is drilling at 120 feet.

Pawnee County

F. S. Menegar's No. 3 Neilson, CNL S half SW, Section 27-21-8, is running 10-inch casing at 550 feet.

Pittsburg County

Midwestern Oil & Gas Co. has a machine on the location for No. 2 Mattocks, C NE NE, Section 8-7-18.

Pontotoc County

Stanolind Oil & Gas Co. has rig material on the ground for No. 1 Burk "C", SW cor. NE, Section 32-5-5.

Seminole County

Amerada Petroleum Corp.'s No. 6 J. Tiger, NE cor. SW, Section 3-8-5, Carr City area, is a cellar.

Stephens County

McAllister and others' No. 1 Voss, SW cor. NE SW, Section 28-1s-8w, has been completed for 1,000,000 feet of gas in sand 1,003-18 feet.

Tulsa County

French Development Co.'s No. 1 Bryan, SE cor NE, Section 25-20-13, is drilling at 2,525 feet. S. W. Anthony has a machine on the ground for No. 9 Whetstone, SE cor. SW, Section 3-16-12. H. E. Bridges' No. 1 Yargee, SW cor. SE NW, Section 28-19-12, has been completed for 300,000 feet of gas in sand at 1,245-80 feet.

T. G. HIBBLER DIES

SHREVEPORT, La., Dec. 14.—T. G. Hibbler, 55, oil operator, died suddenly here from cerebral hemorrhage. Mr. Hibbler formerly lived in Pascagoula, Miss., and has been operating in the Louisiana oil fields for the past 12 years with headquarters in Shreveport.

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RULES COVERING GAS-OIL RATIO PROPOSED FOR OKLAHOMA CITY FIELD

Recommendations for six proposed rules seeking to conserve oil and gas in the Oklahoma City Field, made to the Corporation Commission by a committee of eight engineers and geologists, is in effect an engineering report of the field as a whole, and required the greater part of three weeks to complete. M. J. Kirwan, of the Indian Territory Illuminating Oil Co., chairman of the committee, said that diligence was used and differences of opinion were sacrificed by virtually every member of the committee.

Other than Kirwan, the committee is composed of R. W. Brauchli, R. L. Clifton, E. F. Guidinger, E. J. McKee, J. R. McWilliams, H. S. Thomas and John E. VanDall. The report before the commission, is as follows:

Proposed Rule 1

A rule requiring all producing wells, where necessary, to be equipped with choke or flow bean of adjustable flow regulating device designed and constructed in such manner that the area of the orifice opening may be regulated and determined by means of a properly and conveniently arranged apparatus. . .

An inventory of the field shows the number of wells equipped with either solid or adjustable chokes as follows:

Total number of flowing wells in field, 731, of which 115 have solid chokes and 294 have adjustable chokes, a total of 409 chokes or 56 per cent. Number of Wilcox wells flowing, 281, of which 146 have solid chokes and 63 adjustable, a total of 209 chokes, or 74 per cent. Number of lower Simpson and lime wells flowing, 450, of which 69 have solid and 131 adjustable chokes, a total of 200 chokes, or 44 per cent.

The above tabulation shows that 56 per cent of all flowing wells in the field are equipped with some type of choke. Some of the wells are equipped with small adjustable chokes in the flow lines, and others are equipped with combination flow head and adjustable chokes which are placed directly above the casing and used both as a flow head while taking potentials, and later converted to an adjustable flow bean.

Regarding the suggestions in this rule pertaining to an apparatus which will show at all times the exact area of opening in the flow bean, the undersigned members of the committee are of the opinion that this cannot be accomplished with any known device, as the indicators on present devices are adjustable; and also the amount of cutting within the flow bean will change the area of the opening.

As for locking outlets from a well, the undersigned members of the committee believe that this can best be accomplished by sealing one of the master gates on the well. We do not believe this would be practical, save in exceptional cases.

In order to limit the rate of flow of large wells so as to protect the sand from withdrawals at a too rapid rate, it is recommended, that all wells in the Oklahoma City Field which produce from the Wilcox sand which have a corporation commission potential of 8,000 bbls. or more and/or a daily gas volume in excess of 25,000,000 cubic feet shall, except when taking potentials, produce through a choke, the area of the opening of which does not exceed the area of a 3-inch in diameter circle.

Proposed Rule 2

A rule, the purpose and extent of which will be the adjustment of potentials taken of wells using different diameters of casing and for the purpose of the prevention of unfairness resulting from the determination of a potential by open flow through larger sized casing as against open flow through smaller sized casing.

It is agreed upon by the undersigned members of the committee that in the Oklahoma City Field the size of casing may control to some extent the initial output of the wells. The amount of this control naturally would vary with the size of the wells; the influence of casing size upon production being especially pronounced on large wells, but not noticeable on small wells. It is further probable that the relation between casing size and initial production is also modified by a number of other factors like structural location, number of feet of sand penetrated, texture of sand variations in gas-oil ratio, rock pressure, method of completion, etc.—in fact, by so many variables that it is not practical to determine a mathematical formula which will permit an accurate calculation of how much oil a well producing through a given size casing would produce through a casing of different size.

Proposed Rule 3

A rule requiring the reconditioning of wells which have penetrated one or more producing formations below the Wilcox sand and which have the Wilcox sand exposed by requiring the casing of the Wilcox sand or the plugging off of the producing formations below the Wilcox.

It is the opinion of the undersigned members of the committee that it is not advisable or economical at this time to separate the Wilcox sand from the Simpson below Wilcox sand by casing off the Wilcox sand or plugging off the Simpson below the Wilcox sand. At the present time the undersigned members of the committee have no definite evidence to show that there has been any migration of either oil or gas from the Wilcox sand into the Simpson below Wilcox sand, or vice versa. So far as the committee is informed, there are no so-called combination wells producing from both the Wilcox and Simpson below Wilcox sand in the same hole that make any water.

It is estimated that it would cost in the neighborhood of $5,000 to plug off the Simpson below Wilcox sand in one of these combination wells, and it would cost from $12,000 to $15,000 to case off the Wilcox sand in one of these wells. As there are approximately 78 of these combination wells, it is estimated that it would cost approximately $400,000 to plug off the Simpson below Wilcox, and providing the Wilcox sand is cased off in these wells it would cost $936,000 on the basis of $12,000 per well.

The potential of the combination wells is estimated at 1,420,000 bbls. on a 24-hour basis. The plugging off of the Simpson below Wilcox or the casing off of the Wilcox in these wells would no doubt appreciably reduce the potential production of these wells. In addition the killing of these wells in order to plug off the lower Simpson sand or case off the Wilcox sand would in all probability materially reduce the recoverable production of some of the wells.

The committee examined the production records of nine wells in the Oklahoma City Field that were killed to change connections and found that the production of five of these wells was reduced probably as a result of killing them. Four of the nine wells did not show any decrease in production as a result of killing.

Although the 50 feet or more of shale that separates the Wilcox sand from Simpson below Wilcox sand probably was an impervious barrier between these sands in its original condition, there is a possibility that the plugging in this shale break would not in all cases be successful, however, we believe that plugging would be successful in the majority of such cases providing the work is properly done.

The Wilcox sand is probably a more valuable deposit than the Simpson below Wilcox sand and should be fully protected from migration of oil or gas from this sand into other sands, and should also be fully protected from the entrance of water into the Wilcox sand; therefore, it is the opinion of the committee that whenever there is definite evidence that there is appreciable migration of oil or gas from the Wilcox sand into the Simpson below Wilcox sand that wells in the area affected should either case off the Wilcox sand, or the Simpson below Wilcox sand should be plugged off in combination wells in the area affected. Whenever an individual combination Wilcox and Simpson below Wilcox sand well shows 3 per cent or more water, then the Wilcox sand should be cased off or the Simpson below Wilcox sand should be immediately plugged off.

Proposed Rule 4

A rule changing the method of proration in the Oklahoma City Field from a well basis to a lease basis.

The undersigned members of the committee are of the opinion that prorating on a lease basis has certain advantages and certain disadvantages.

(Herein is listed five advantages for lease proration and three disadvantages of the method.—Ed'tor.)

The committee believes it not necessary to prorate on a lease basis in order to conserve gas from high gas-oil ratio wells, as the committee, under the discussion of gas-oil ratios, suggests that high gas-oil ratio wells may be shut in and their allowable production apportioned to other wells in accordance with their potentials.

Considering all of the factors for and against lease proration, the undersigned members of the committee favor the continuance of proration in the Oklahoma City Field on a well basis, and recommend the advantages suggested above be incorporated in an order by the Corporation Commission.

Proposed Rule 5

A rule looking to the regulation and establishing the method and manner of producing oil wells, which wells produce water, to the end that the producing oil sands may be protected from destruction by water and waste thus prevented.

At the present time there are 42 wells producing more than 3 per cent water in the Siliceous lime area, and approximately 67 wells in the sand area (including Wilcox and Simpson below Wilcox) producing more than 3 per cent water. In the sand area there are also seven wells producing water that make less than 3 per cent water.

A study of a group of 34 Simpson below Wilcox sand wells, each of which produces 3 per cent or more water, shows that their decline in oil production has decreased and the per cent of water that these wells produce has also decreased since the wells were given an exemption of 200 bbls. of oil per well per day. Before the 200-bbl. per well per day exemption was granted, these wells declined at the rate of 8.5 per cent per 100,000 bbls. of oil produced, and after exemption declined only 2.6 per cent for each 100,000 bbls. of oil produced. The per cent of water in these wells, before exemption, increased at the rate of 5.4 per cent per 100,000 bbls. of oil produced, and after exemption decreased 1 per cent per 100,000 bbls. of oil produced. This shows that the water condition of the above group of wells has been considerably improved as a result of the exemption which permits a greater amount of water to be produced from the sand than before exemption. It is probable that the water condition of this group of wells, and other similar wells, will continue to improve, at least for some period of time, providing a substantial amount of water is removed from the sand.

One company in the field has put in 42 plugs in 26 wells. Water was successfully shut off in five of these wells, and the results of plugging the other wells has not been thoroughly demonstrated as the amount of time permitted for testing was limited. There is a possibility that water was successfully shut off in some of the wells that were plugged, and that the water they produced after plugging was from other wells, or return water from the sand.

In view of the favorable results secured following the additional allowable oil production and consequent additional water removed from the sand in the above mentioned group of wells, it is the recommendation of the undersigned members of the committee that the practice of granting certain exemptions to water wells be continued. At the present time Simpson below Wilcox sand wells that make more than 3 per cent water and have 2,000 bbls. per day or less potential are granted a 200-bbl. per well per day exemption, and are allowed an additional amount of oil based on their potential. It is the recommendation of the undersigned members of the committee that the present plan be changed so that all wells in the Oklahoma City Field (except Siliceous lime wells hereinafter mentioned) that produce 3 per cent or more water be granted a flat exemption of 200 bbls. of oil per day, and that no additional allowable above such flat exemption of 200 bbls. of oil per day be given such wells; provided, however, that on wells making 3 per cent or more water, the potential of which multiplied by the per cent allowable gives more than the flat exemption, that such wells may continue to be produced on the basis of their potential rather than on the basis of a flat exemption per day.

With reference to wells producing from the Siliceous lime which now have an exemption of 250 bbls. per well per day, it is the recommendation of the undersigned members of the committee that the Siliceous lime area be given a flat allowable of 7,000 bbls. of oil per day to be allotted to the various wells in a manner to be decided upon by the operators in the Siliceous lime area, subject to the approval of the Corporation Commission. This allotment of 7,000 bbls. per day is recommended to the Siliceous lime area with the understanding that at any time the Siliceous lime area is not averaging as much as 7,000 bbls. per day for a period of 30 days the umpire is to report this fact to the commission and the total allowable of the area will be reduced to the amount less than 7,000 bbls. per day which the wells in the area are capable of producing, and the portion of the 7,000 bbls. per day which the Siliceous lime wells are incapable of producing will be apportioned among the wells in the other areas.

Proposed Rule 6

A rule establishing a fair, equitable oil and gas ratio as between production of oil and gas from wells producing both oil and gas for the purpose of conserving gas energy and thereby increasing the ultimate recovery of oil and the prevention of waste of casinghead gas or dry gas.

In view of the tests that have been made in the Oklahoma City Field by applying back pressure to wells producing from the various horizons, the undersigned members of the committee are of the opinion that no specific gas-oil ratio can be prescribed for the field as back pressure on some wells decreases the gas-oil ratio and on other wells greatly increases the gas-oil ratio. A study of field conditions shows that the gas-oil ratio of certain wells has changed considerably, and there are a number of specific cases where wells with high gas-oil ratios have decreased in a short time in gas volume to such an extent that they produce on a comparatively small gas-oil ratio, whereas other wells with low gas-oil ratios have increased in gas volume to such an extent that the ratios are unusually high. A further study of field conditions shows that there has been a shifting of gas volumes from one well to another, and vice versa.

It is recommended that wells having gas-oil ratios in excess of 10,000 cubic feet per barrel, at the option of the owner, shift the allowable production from such wells to other wells on the lease having a gas-oil ratio of less than 10,000 cubic feet per barrel in accordance with the potentials of such other wells on the lease. It is estimated that there are at least 75 wells in the Oklahoma City Field that have a gas-oil ratio in excess of 10,000 cubic feet per barrel, and by the shifting of the allowable production from these wells to other wells on the lease, it is estimated that possibly as much as two or three billion cubic feet of gas could be saved each month.

Should the Corporation Commission deem it advisable to set a certain maximum permissible gas-oil ratio for the Oklahoma City Field; for example, 10,000 cubic feet per barrel, it should be remembered that there will be a number of wells in the field which it will be impossible to recondition in any way, or to operate the well in such manner as to bring the ratio below 10,000 cubic feet per barrel. These wells, if such an order should be made, would of necessity be closed in and the owners deprived of what has heretofore been considered their rightful revenue from this source.

TESTS FOR SULPHUR IN LIGHT OIL PRODUCTS

(Continued from Page 26)

fitted with a reflux condenser. One hundred c.c. of the sample is added to the flask and boiled with reflux for 1 to 1.5 hours. After cooling, the liquid is decanted onto a filter paper, the copper-bronze washed on with high gravity sulphur free gasoline. Filter and flask are then dried, 50 c.c. of distilled water added and treated with bromine until bronze and sulphide are in solution. Add 2-3 c.c. concentrated hydrochloric acid, wash the solution into a 400 c.c. beaker and boil off the excess of bromine. Filter, then precipitate the sulphur with barium chloride. The resulting barium sulphate is filtered off, dried and weighed, from which the sulphur is calculated.

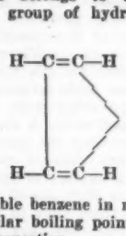
Indophenin Reaction

The sulphoxides, sulphones and thiophenes are sulphur compounds occasionally met with. The sulphoxides and sulphones are not liable to be detected in gasoline because tney usually find their way into petroleum products through the acid treatment, and gasoline is seldom acid treated. Sometimes a distillate will be slightly acid because of the presence of sulphonic acids. A succession of alkaline washes followed by sulphuric acid and water washes removes them.

The thiophenes first separated from petroleum by Maybery and Quale (see Amer. Chem. Jour., 35, 404, 1906), when investigating the sulphurous Canadian oils, are exceptionally stable. They are found in some of the oils of the Rocky Mountain district.

The usual treating methods have no influence on the removal of sulphur in the thiophene form. The doctor treatment, hypochlorite solutions, or copper oxide cannot be used to advantage. The acids and aluminum chloride effect some improvement, especially if it is possible to make use of either at slightly elevated temperature.

Thiophene belongs to the cyclic or closed ring group of hydrocarbons represented by



They resemble benzene in many respects, having similar boiling points and similar chemical properties.

The qualitative test for thiophene is based on the blue color produced in the presence of isatin, a compound closely related to indigo. The test is well known, being described in all of the standard text books on organic chemistry. The sample of oil is freed from mercaptans and sulphides, then washed well with water and dried over anhydrous calcium chloride. This dried oil may then be tested for thiophene by the indophenin reaction. The procedure is: Dissolve a small portion of the oil in about 2 c.c. of chemically pure benzene, add about one half to 1 c.c. concentrated sulphuric acid, then a trace of isatin. If sulphur is present as thiophene the acid will become a deep blue color, which is known in organic chemistry as the indophenin reaction. A minute trace of iron chloride in the acid is sometimes used to accelerate the reaction.

Doctor Test

The doctor test is probably the best known of all methods used for passing on the quality of petroleum products and some inspectors have thought that color changes observed under the conditions of the method included all forms of sulphur. This is not true, as the only substances indicated by a positive reaction are hydrogen sulphide and the mercaptans. A somewhat unreliable indication of free sulphur, similar to milky water, may be obtained under some conditions. The solution used is sodium plumbite, with a pinch of sulphur, and appears to have originated with H. W. Kittredge about 1890, who applied the doctor process for the treatment of high sulphur distillates from Canadian oils.

The materials required for making the doctor solution are sodium hydroxide, litharge, water and flowers of sulphur. One of the several methods for making the solution is to dissolve 125 grams of sodium hydroxide in about 300 c.c. of water, dilute this solution to one liter with water, then add 70 grams of litharge. Shake this thoroughly for about 15 minutes, then set aside for 24 hours and finally decant off the clear liquid. This test solution should be kept in a clear glass bottle, closed with a wax-treated cork.

The test is made in a 4-ounce oil sample bottle, stoppered with a new cork. Place about one volume, say 5 c.c. of the doctor solution in the bottle and add about three volumes of the gasoline, or other distillate, to be examined. Shake the mixture vigorously for 15 seconds. If there is no reaction, add a pinch of sulphur and shake again.

In the presence of hydrogen sulphide a black precipitate will form immed ately but the usual positive test is the formation of a yellow to brown color in the gasoline portion and a brownish precipitate between the solutions, Figure 2. A darkening of the gasoline, or the formation of a precipitate at the junction of the two liquids is considered to be a positive test and the sample is reported to be "sour." When there is no discoloration of the gasoline, with no indication of an orange, black, or brown precipitate, the result is negative and the sample is classified as "sweet."

Lead acetate has been suggested by Doctor Thole, of the Anglo-Persian Oil Co., in place of litharge for making up the doctor test solution. This is made by dissolving 25 grams of lead acetate in a small quantity of distilled water, sodium hydroxide sticks 60 grams in about 200 c.c. of water, mixing the solutions and then adding enough water to make one liter. The advantage of this method is that the chemicals may be easily obtained chemically pure, the solution is easy to prepare and, as it requires but a short time, the solution is quickly available.

Popular Test

The doctor test, as it is widely used, is really a test for mercaptans, compounds that are not very objectionable except as to odor, because they are not particularly corrosive. It is true that the presence of hydrogen sulphide will be readily shown by the black precipitate formed immed'ately upon the contact of a sample containing hydrogen sulphide with the sodium plumbite. In the presence of this substance the reaction for mercaptans will be covered by the black precipitate of lead sulphide. However, gasolines containing hydrogen sulphide are very seldom found on the market and the use of the test for this purpose is mainly confined to the refinery as a control on distillates in process of purification.

When hydrogen sulphide is absent the liquid fuel containing mercaptans will immediately, after the second shaking with the pinch of sulphur, assume a yellow color rapidly changing to orange, and finally become brown to black. The reactions involved have appeared many times' but may be of special interest here. here.

It is important to remember that the disulphide is soluble in gasoline, therefore it may happen that a fully refined oil will contain more total sulphur than the raw distillate. Sulphur of this sort is not detected by either the corrosion test or the doctor test but will appear as part of the total sulphur.

The first step in the sweetening of a light distillate, by the doctor, sodium plumbite treatment, is the removal of acids and all sulphur in the form of hydrogen sulphide by the application of water, alkali, and doctor solution. Any hydrogen sulphide not removed by the water and alkaline washes unites w.th the lead of the sodium plumbite to form the black lead sulphide. Hydrogen sulphide is removed to some extent by water because of its solubility; this being of the order of about three volumes of gas to one of water at 60° F., and approximately two volumes at 100° F. The action with caustic soda is to form either the sulphide or acid sulphide, depending upon the concentration.

(3) $2\,NaOH + H_2S \rightarrow Na_2S + 2\,H_2O$

(4) $NaOH + H_2S \rightarrow NaHS + H_2O.$

The black precipitate of lead sulphide forms according to

(5) $Na_2PbO_2 + H_2S \rightarrow PbS + 2\,NaOH.$

Aside from any sulphur acids and hydrogen sulphide, no sulphur is removed by the doctor solution. This may be explained by the fact that after the removal of the hydrogen sulphide the mercaptans and other organic sulphur compounds remain. The behavior of the mercaptans is illustrated by the equations following.

(6) $2R.SH + Na_2PbO_2 \rightarrow Pb(RS)_2 + 2NaOH$
(See also No. 1.)

R representing the hydrocarbon group, such as ethyl, C_2H_5.

The lead mercaptide, $Pb(RS)_2$, may be either a yellow precipitate or tending to brown according to the nature of the mercaptide present. The lower mercaptans, such as are present in natural gasoline, will usually give the yellow or orange color mercaptides as precipitates. The color disappears upon the addition of the sulphur.

(7) $Pb(RS)_2 + S \rightarrow PbS + RS—SR.$
(Same as No. 2.)

The compound RS—SR, the disulphide, is soluble in the gasoline and noncorrosive to the copper strip test; also, there will be no reaction if more plumbite solution is added.

Sulphur Remains

These changes show that the sulphur present as mercaptans is not removed from the distillate, the result of the treatment being to improve the odor; because, the mercaptans are compounds that have an objectionable strong odor. There is always the chance when changing the mercaptides to the disulphides to add too much sulphur and any excess becomes soluble in the gasoline. Some of the high sulphur gasolines occasionally found on the market are the result of oversulphurizing. The solubility of sulphur in gasoline is great enough to add 0.4 per cent to the total sulphur content. The quantity of sulphur added, according to Wood, Lowy and Farrager, should be in the ratio of 0.5 gram of sulphur to each gram of sulphur present in the form of mercaptans. The complete conversion of the mercaptide to the disulphide may be accomplished without the addition of any sulphur if the distillate and precipitate is agitated with air (oxygen). This is because the oxygen reacts with the lead sulphide and caustic soda to regenerate the lead to sodium plumbite, which reaction explains the benefit derived from blowing in the batch agitator and the introduction of air into a continuous treating system. It is also the basis of the process for the revivification of used doctor solutions.

	Color					Orange		
(1)	Chemical reaction	$2C_2H_5SH$	+	Na_2PbO_2	→	$Pb(C_2H_5S)_2$	+	$2NaOH$
	Name	Ethyl mercaptan		Sodium plumbite		Lead mercaptide		Sodium hydroxide
	Color		Orange			Black		
(2)	Chemical reaction		$Pb(C_2H_5S)_2$	+	S	→ PbS	+	$(C_2H_5S)_2$
	Name		Lead mercaptide		Sulphur	Lead sulphide		Ethyl disulphide*

[1] See Went and Diggs, Ind. Eng. Chem., 16, 1113, 1924. Wood, Lowy and Farrager, same, 116. Morrell and Farrager, same, 19, 1045, 1927.

*Soluble in the petroleum fraction.

Out of the 312 samples of motor fuels in the Bureau of Mines survey, R.I. 3152 previously mentioned, there were only 20 samples that failed to pass the doctor test. These were equally divided, 10 were competitive price gasolines and 10 were fuels sold at a premium.

Total Sulphur

Specifications for gasoline stipulate that the total sulphur shall not exceed 0.1 per cent; in a few instances this limit has been set at 0.2 per cent. Residuals, such as fuel oil, unfinished distillates for use as sprays in agriculture, cutting oils and flotation oils may contain more. Waters, in Technologic Paper 177, Bureau of Standards, states: "Sometimes the presence of sulphur is desirable, as in flotation oils and some cutting oils. In the first case it is essential that the particles of ore cling to the oil drops in order to become separated from the gangue. The metallic sulphides more easily become oily than the other minerals. This oiling effect is helped by the presence of sulphur, perhaps by its action on particles or surface films of oxide which are thus changed to sulphide.

"The principal reasons for using a cutting oil is to lubricate the chips so that they can slide off the tool easily. It has been claimed that sulphur causes the oil to cling better to the metal by forming a film of sulphide. If this be true, the film is of extreme tenuity, because the metal shows little sign of tarnishing, as a rule."

The ordinary practice when making a quantitative determination for sulphur is to treat the substance in some way, usually by oxidation, to render the sulphur soluble and then precipitate it as barium sulphate, which is weighed. This method requires too much time for routine work where a large number of determinations are necessary, and is not well adapted to the examination of a petroleum oil. Many years ago efforts were made to burn the oil so that the products of combustion could be collected and the sulphur content determined. It appears that A. H. Allen, who published an article on the subject in Ztschr.angew.-chem., vol. 1, 214, 1888, was one of the first to make use of a lamp for this purpose. The first serious sulphur problem of the petroleum industry was introduced with the discovery of the high sulphur oil of the Lima district in 1886 and the matter of a rapid analytical method became of considerable importance.

A procedure related to the present lamp test was described by W. H. Burton in 1889, Amer. Chem. Jour., 11, 472. 1889. His method was to burn the oil in a hot tube, through which air was passed, and to absorb the products of combustion in a standardized solution of potassium hydroxide, and then after titration with acid, calculate the loss of strength of this solution. This was later improved by Burton and Robinson to what in principle is identical with the lamp test as now used. That is, a small portion of the oil is weighed in a lamp, the oil is burned from a wick, loss in weight is the quantity of oil, the gases containing sulphur are absorbed in an alkaline solution of known concentration, then from the decrease in strength of this solution and the weight of the oil burned the quantity of sulphur in the oil may be calculated.

The standard method for determining total sulphur is one proposed by the American Society for Testing Materials, A.S.T.M D-90-30-T, Proceedings, Vol. 30, pt. 1, 1134, 1930, and adopted by the Bureau of Mines. It is fully described in Technical Paper 323-B, as applied to the lighter petroleum products, but is not applicable to mixtures that may contain sulphur in the form of carbon disulphide. This compound may be found in blended motor fuels, especially the blends containing aromatic compounds, such as

benzene (benzol). The assembly is shown in Figure 3.

About 20 c.c. of the sample is placed in the lamp and weighed. Exactly 10 c.c. of standard sodium carbonate solution, containing 3.306 grams per liter, is measured into the absorber. All connections are made tight, suction is started and the lighted lamp set in position, as illustrated. Continue burning under suction for about two hours. Rate of consumption is about 1 gram per hour. Extinguish the flame, stop the suction and weigh the lamp at once. The loss is the weight of oil consumed. Rinse the chimney and spray trap with distilled water, containing 0.004 gram methyl orange per liter, into the absorber. Titrate with standard hydrochloric acid, 2.275 grams HCl per liter, agitating and mixing the contents of the absorber while titrating. A blank determination by burning sulphur-free alcohol in another lamp should be run at the same time and allowance made for any positive results obtained by the titration of the solution used. The calculation is outlined as follows:

$$\text{Sulphur per cent} = \frac{(\text{HCl for blank c.c.}) - (\text{HCl for oil c.c.}) \times 0.1}{\text{grams oil burned}}$$

The formula is correct only for the standard solutions specified, 1 c.c. of each being equivalent to 0.001 gram of sulphur.

Edgar and Calingaert Method

A study of the lamp method for determining total sulphur has been made by Espach and Blade, Tech. Paper 513, Bureau of Mines, 1931. They direct attention to the inaccuracies of the standard method, particularly to the low results when carbon disulphide is present in a blend. The Edgar and Calingaert method, Ind. Eng. Chem., Anal. Ed., Vol. 2, 104, 1930, is recommended. The analytical details are similar to the A.S.T.M. method except apparatus and the indicator. The indicator is made by dissolving 1 gram of methyl orange and 3 grams of indigo carmine in one liter of water. The apparatus, Figure 4, includes a special lamp and an air purifier. The purifier is filled with loosely packed soda lime, activated charcoal and pumice coated with phosphorous pentoxide. The soda lime removes acidic vapors, the charcoal other substances that might yield acid on combustion, and the phosphorous pentoxide any ammonia fumes that might be in the air. Consult the references for the details.

When the quantity of total sulphur in a motor gasoline is high serious corrosion of the automobile engine may follow. Containers, or any parts not subjected to heat, or contact with air and moisture, are not damaged by the ordinary high sulphur gasoline. It is actual combustion that converts the sulphur to oxides and acids which may combine with moisture and condense on the cylinder walls, valve seats, upper part of the engine block, and even escape into the crank case to contaminate the oil, be dissolved in any water present and do further damage.

The latest government survey of gasoline samples, above mentioned, shows a tendency toward higher sulphur. There were 14.2 per cent of the samples containing over 0.1 per cent total sulphur. Analyses of 207 samples of competitive priced gasoline and 105 premium motor fuels were made, of these 85.8 per cent of all samples, 83.9 per cent of the competitive priced, and 89.3 per cent of the premium priced had 0.1 per cent total sulphur or less.

Just how much sulphur may be present in a gasoline without doing serious damage to a motor has not been definitely determined. Improvements in construction have prevented the accidental entrance of water into the lower parts of the engine and consequently recent models are not so liable to this corrosion trouble as the older cars. It has been shown that filters, crankcase ventilators and means for controlling the temperature materially influence the conditions that aid in the formation of the acids. While the limit for total sulphur in gasoline is set at 0.1 per cent in the government specifications, there is no definite authority for this quantity. It will be interesting to observe the influence of the recent adoption of a 0.2 per cent total sulphur by Montana.

Sulphur in Crude Oil

It is an advantage that most of the crude oils of the country do not contain large quantities of sulphur. The purification process in the refinery is neither seriously complicated nor very expensive. Sulphur is present, however, in some petroleums in sufficient quantity to do such extensive damage to refinery equipment as to cause considerable loss. The normal oil when distilled in the refinery is decomposed so that the larger part of the original sulphur is distributed through the heavier distillates and the residue. The smaller quantity is to be found in the gasoline fraction. This may be illustrated by the distillation of a 37 A.P.I. gravity oil containing 0.350 per cent total sulphur.

DISTRIBUTION OF SULPHUR IN PRODUCTS

(All figures are per cent.)

Product—	Quantity obtained	Sulphur content	Part in crude	Pct. of total
Gasoline	31.77	0.02	0.0067	1.91
Kerosene	18 26	0.05	0.0086	2.45
Gas oil	5 74	0 10	0 0060	1.71
Lubricating distillate	28.19	0.77	0.0970	27.72
Fuel oil	15.21	0.76	0.1156	33.03
Gas and loss	0.83	14.04	0.1161	33.18
	100.00		0.3500	100.00

The separation was made according to the ordinary practice with the use of steam and towers. The products mentioned were obtained in one run and were not purified in any way. The sulphur is shown to increase in quantity as the distillation proceeds, the lowest percentage being found in the gasoline or first fraction and the highest in the last and the fuel oil residue.

TROPICAL OIL OPERATIONS

WASHINGTON, D. C., Dec. 14.—Recent inquiries have been made here concerning the operations of the Tropical Oil Co. in Colombia. Advices just received indicate the production of crude oil in Colombia (all from wells of the Tropical Oil Co.) was, for 1929, 20,295,925 bbls., and for 1930, 20,343,176 bbls.

In 1929 oil run to stills by the Tropical company was 1,667,761 bbls.; in 1930, 1,230,034 bbls., and for the first six months of 1931, 627,559 bbls.—C.E.K.

WEST TEXAS GEOLOGISTS

SAN ANGELO, Tex., Dec. 14.—The West Texas Geological Society, organized here in the fall of 1926, has chosen A. L. Ackers, district geologist for Stanolind Oil & Gas Co. at San Angelo, as president for the ensuing year, succeeding Robert L. Cannon, consulting geologist. Other officers are: Vice president, W. W. Patrick, The Texas Company, Midland; secretary-treasurer, Miss Minette Ries, Phillips Petroleum Co., San Angelo.

At the session at which the election was held, John F. Hosterman, district geologist for Amerada Petroleum Corp. here, reviewed the fifth annual field conference of the Kansas Geological Society held in Oklahoma and Arkansas in September.

DONALD FRASER DEAD

Donald Fraser, 78, director and former vice president of the Chain Belt Co., Milwaukee, Wis., is dead. Mr. Fraser went to the Chain Belt Co. in 1895, contributing important inventions. He became vice president and works manager, retired from these offices in 1917 and was made a director. He also was a director of the Sivyer Steel Casting Co. and the Federal Malleable Co., both of Milwaukee.

JUST WHAT OIL MEANS TO TEXAS AS SUMMARIZED BY TEXAS WRITER

Edmunds Travis in Texas Weekly

Oil and agriculture are the principal supports of the Texas economic structure and are more nearly equal in importance than is generally realized. A compilation made this year by the North Texas Oil and Gas Association showed expenditures in Texas by the oil industry during 1930 totaling $666,446,000 exclusive of gasoline taxes, or $698,654,000 counting gasoline taxes. The value of all Texas farm crops in 1930, according to an estimate made by the U. S. Department of Agriculture, was $434,512,000. That year, however, was a bad one for agriculture. The average annual crop value for Texas during the last 10 years has been $687,000,000. Thus the oil industry's expenditures for 1930 top the average value of farm crops if we count gasoline taxes, and fall comparatively little below it if we leave gasoline taxes out of account.

An examination into details of the industry's expenditures reveals that petroleum is a heavy contributor to the welfare of the farming community. During 1930 royalty oil brought to Texas landowners and their assignees a total of $45,000,000. Lease bonuses paid to landowners amounted to $25,000,000, and leases and rentals to $8,750,000. The largest item of the expense account, consisting of payments for materials, supplies and services—including teaming, trucking, contract drilling and water supply, among other things—and totaling $210,000,000, is one from which farmers and country town dwellers have profited largely. And farmers and all other payers of ad valorem taxes have been spared heavy burdens by the oil industry's contribution to state revenue.

Half Million Dependent on Oil

Employes of the oil industry in Texas number approximately 120,000. On the basis of the Federal Government's estimate that 4.4 people are dependent upon each wage earner's wage, 528,000 people in Texas draw their livelihood directly from oil pay rolls. Just how many more receive stock dividends or bond interest from oil companies is a matter of guess. The larger companies alone have approximately 100,000 stockholders in Texas, but many of these are also company employes. As to Texas holders of other oil securities, accurate information is not available. Certainly, aside from farming, the oil business supports more Texas people than are supported by any other.

It is probable that few states or nations derive so large a proportion of their public revenue from the properties and products of one business as Texas draws from those of the oil industry. Ad valorem state taxes paid by the industry last year amounted to $4,768,000, which was more than one-sixth of all state ad valorem taxes. Its production taxes totaled $6,371,000, which was more than one-half of all gross receipts and occupation taxes collected by the State. In addition, the oil industry paid $807,000 in miscellaneous state taxes, bringing its total contribution to state tax revenue to $11,946,000, without counting gasoline taxes. It also paid $15,000,000 in local taxes, including city, county and school taxes. The gasoline tax of 4 cents per gallon on gasoline sold within the State, amounted to $32,208,756, bringing the total of state taxes produced by oil to $44,154,756, and the total of state and local taxes to $59,154,756.

Oil Most Heavily Taxed

Counting the gasoline tax, the oil industry paid 56.8 per cent of the total state revenue from taxation. There is always an argument as to the proportion of the gasoline tax that is borne by the industry itself and not passed on to consumers of gasoline, but it is beside the point in this discussion. No matter how its ultimate burden may be distributed, the tax is levied on a petroleum product and, therefore, may be included appropriately in any consideration of what oil means to our state government. There is no other commodity which the State taxes so heavily as gasoline, and there is no other contributing so much to state revenue. Proceeds of the gasoline tax exceed by more than $8,000,000 all revenue obtained from ad valorem taxes of all descriptions.

However, the contribution of oil to state revenue cannot be ascertained from an examination of tax figures only. The State itself is a large owner of oil lands, and derives a great income from the rental of such lands and from payments for royalty oil. From oil royalties alone the State's income for the fiscal year ended August 31, 1930, amounted to $2,417,472. It was less in the next fiscal year, but that was an unusually bad year for the oil industry, with prices of crude at remarkably low figures.

The Texas oil industry has grown to greatness so rapidly that many of us do not appreciate the extent to which other lines of Texas business, the support of government and the advancement of education are dependent upon that industry's prosperity. We are not far removed, as time goes, from a period in which Texas had few industries and was altogether on the buying side of the oil market. Certain habits of thought developed in that period still color our attitude toward oil and those engaged in producing and selling it. Hence, the popularity of cheap oil products in the State which leads in their manufacture. Hence the loading down with taxes of an industry directly supporting not less than 600,000 of our citizens. And hence a volume of criticism of the same industry, and a succession of attacks upon it which people in the oil consuming States must find most difficult to understand.

One of the habits we acquired in the pre-industrial periods of our State's economic history was distrust of industrial corporations. And the development of our resources has brought us hundreds of these. Some of them are among the largest of all our corporations. But they have been with us for so few years—although the largest of them were "born" in Texas—that many of us still look upon them as strangers and are inclined to treat them accordingly.

GULF COAST FIELDS

(Continued from Page 39)

a dry gasser. It is a rank wildcat, 15 miles northwest of the old Houma gas field, and on a large geophysical block.

On the extreme northwest flank of the old Humble Dome, Sun Oil Co.'s No. 26 Bender is in shale showing oil at 3,349-3,484 feet. No. 25 Bender, which has been pumping water from sand at 3,850 feet after plugging back from salt at 3,268-98 feet, has been abandoned temporarily. These tests are in semiwildcat territory. No. 26 is 310 feet west 20° north of No. 25.

Rio Bravo Oil Co. has completed its No. 123-A Cotton, one of a series of shallow sand wells at Saratoga, Hardin County, pumping 10 bbls. daily from sand 592-611 feet.

C. M. MORRISON DIES

C. M. Morrison, familiarly known as "Dad" and said to have been the oldest employe of the Oil Well Supply Co., passed away in his sleep Sunday, December 6, in the home of a daughter in Ponca City, Okla. Mr. Morrison, who was 81 years of age, did his first work for the Oil Well Supply Co., in Oil City, Pa., in 1869 and had been a regular employe since 1876. With the beginning of oil development in Oklahoma he was sent to Bartlesville and he passed the rest of his life in that region. He retired from active work in October, 1921, and had been on the company's pension list since then. Mr. Morrison's service was in the manufacturing and merchandising departments. His sight failed a year ago and since then he had been weakening.

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Read by Oil Men Everywhere

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3 lines	1.05	1.80	2.55	3.30
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5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE—EQUIPMENT

200 Amp. Lincoln Arc Welded 220/3/60. Practically new. Price $425.00. 100 Amp. Federal Butt Welder; 220 V. 60 cy. Complete. Excellent condition. $500.00. 12"x14" Chicago Pneumatic Air Compressor. $350.00. 46"x18' Niles Lathe, Quick change; $1,250.00. Also, large stock of lathes, shapers, mailing machines, pipe machines, bolt threaders; etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, O.

FOR SALE—One practically new Sullivan "N" Portable Gasoline Engine Driven Diamond Core Drill. Cheap for cash. Also one "Bravo" Diamond Core Drilling Machine. Address P.O. Box 1897, Tulsa, Okla.

USED EQUIPMENT FOR SALE

Casing, Linepipe, Boilers, Engines, Compressors, Derricks, Tanks, Separators, Rig Irons, Pumps, Gasoline Plant Equipment, Fittings, Valves, etc.
Low prices and quality merchandise.

USED EQUIPMENT COMPANY
1510 Philtower Bldg.,
Phone 5-3263
TULSA, OKLAHOMA

WE HAVE on hands all sizes of pipe from one-inch to twenty-inch. Get our prices before you buy. Western Pipe & Supply Co., Box 731, Eldorado, Kans.

ONE 400 and one 600 Lincoln Stable-Arc Welder. Also one Caterpillar 30 Tractor with all-steel winch. All practically new and priced right. Johnson Plbg. & Htg. Co., Wichita, Kans.

20 Waukesha engines, heavy-duty, 4-cyl., 120 H.P. Cheap.
MERTES MACHINERY CO.
1622 S. First St., Milwaukee, Wis.

FOR SALE
Good used casing, all sizes (line pipe 5,000 feet); (4) steel gasoline tanks. 7x30 feet; some turnbuckle rigs, complete; some extra parts; used boilers, etc. Address Box 623, Tonkawa, Okla. Telephone 660.

FOR SALE or trade, one Star Steam Drilling Machine No. 23, fully equipped with tools. Boiler mounted separate. A No. 1 condition, like new. Will trade for a good string of standard drilling tools. G. H. Demsey, Elyria, Ohio. R.F.D. No. 1.

RANCHES AND FARM LANDS

RANCH land in Texas and New Mexico, 40 to 400,000 acres, improved or unimproved, $2 per acre up; cash, terms or trade for business property, stocks or bonds. Amos Poe, Andrews Building, Dallas, Tex.

USED MATERIAL FOR SALE

Located Seminole and Pottawatomie Counties, Oklahoma, all equipment purchased new about three years ago, priced as is, and where is, terms Cash.

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2	Braden Sectional Steel Buildings 20'x34'x10'	500.00
1	Braden Sectional Steel Building 16'x56'x10'	700.00
1	Braden Sectional Steel Building 16'x26'x10'	250.00
1	Braden Sectional Steel Building 24'x24'x16' High	700.00
2	90 H.P. Superior Gas Engines Direct Connected to 17"x20" Compressor Cylinder, four cycle	2,500.00
11	90 H.P. Twin Cylinder Superior Gas Engines Direct Connected to 12"x16" compressor cylinders, two cycle	2,750.00
3	165 H.P. Type 10 Bessemer Twin Cylinder Gas Engines direct connected to 16¼"x20" Compressor Cyl., two cycle	4,600.00
1	35 H.P. Gas Engine, 4 cycle Superior	690.00
9	4" Centrifugal Pumps	50.00
5	10"x6"x10" Worthington Duplex Steam Pumps	200.00
1	3"x2"x4" Worthington Duplex Steam Pump	40.00
2	4½"x2¾"x4" Worthington Duplex Steam Pumps	60.00
3	5¼"x3½"x5" Snow Duplex Steam Pumps	65.00
1	3"x2"x4" Snow Duplex Steam Pump	40.00
1	6"x4"x6" Gardner Duplex Steam Pump	90.00
2	8"x4"x12" Cameron Steam Pumps	200.00
1	5"x2½"x6" Cameron Steam Pump	90.00
1	10 H.P. F&M Type ZA Gas Engine Direct Connected to 4"x6" Pump	600.00
2	6 H.P. F&M Gas Engines Direct connected to 2¾"x4" Pumps	300.00
1	6 H.P. F&M Gas Engines Type ZA W/ Natural Gas Attach.	100.00
1	6 H.P. F&M Gas Engine Type Z-E	100.00
4	65 H.P. 150-lb. W. P. Broderick Boilers Locomotive Type	750.00
2	73 H.P. 175-lb. W. P. Acme Code Boilers Locomotive Type	900.00
24	Type A-240 Three pass Griscom-Russell Bentube Sections	280.00
1	48"x52' 75-lb. W. P. Ereco Still W/Dephlegmator and Accessories	2,750.00
1	42"x30"x41' 7" H.P. Tulsa Type Fractional Distillation Column	2,000.00
1	72"x24' Newton Blending Still	1,200.00
2	60"x24' Newton Blending Stills	950.00
4	60"x24' Newton 7 Plate Absorbers	500.00
1	72"x52' 17 Tray Gilmore Type Absorber	1,750.00
2	14" Newton Auxiliary Absorbers	200.00
3	1,600 Bbl. Wood open top Tanks	300.00
2	1,000 Bbl. Columbian 12 Gauge Steel Bolted Tanks	540.00
2	500 Bbl. Steel Bolted Tanks, Two high	225.00
3	10'x30' Steel Riveted Stock Tanks Horizontal ¼"	450.00
6	8'x26' Steel Welded Horizontal Tanks 3/16"	250.00
7	5'x15' National Welded Steel Horizontal Tanks ¼" and ⅜"	100.00
2	72"x84" National Welded Scrubber Tanks ¼" Steel	90.00
4	60"x60" National Welded Scrubber Tanks ¼" Steel	80.00
2	72"x72" National Welded Scrubber Tanks ¼" Steel	90.00
3	48"x72" National Welded Scrubber Tanks ¼" Steel	50.00
4	60"x72" National Welded Scrubber Tanks	80.00
	Preheaters, Heat Exchangers, Dephlegmators, Gasoline-Water Separators, Liquid Level Controls, Regulators, Steam Traps, Line Shafts, Pulleys, Gates, Valves, Fittings, Accessories, etc. 50% today's list.	
970'	12½" 50-lb. Plain End Casing	1.00
21,402'	10" 35-lb. 8thd Casing	.70
3,790'	8¼" 8thd Casing	.60
22,150'	6" 8thd Line pipe	.40
75,000'	2" 3.75-lb. line pipe	.07

All prices listed are per single unit and subject to prior sale

For further particulars communicate with M. E. James, Trustee, P. O. Box 728, L. D. No. 7, Cushing, Oklahoma.

Or

REX H. WINGET, Secretary and General Manager,
Cushing Refining and Gasoline Co., Cushing, Oklahoma.

MAILING LISTS

LIVE mailing lists of investors in oils, royalties, leases and mining. Flory & Co., Box 1328 G, Ft. Worth, Texas.

INCORPORATIONS

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms Colonial Charter Co., Wilmington, Del.

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Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

INCORPORATIONS

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Organize, re-organize and arrange stock or bond issues. Obtain "security law" permits in all states. We help you raise working capital. Write the Bond House of Illinois, 612 N. Michigan Ave., Chicago, Illinois, Est. 1925.

BUSINESS OPPORTUNITIES

SAFETY FIRST
You can own, control, highly profitable production and sale in natural gas. Small capital starts you. $2,000 or $3,000 ample. Proven acreage. Excellent market. four public utility pipe lines buying. Four producing sands, deepest only 600 feet. Write H. B. Buddenborg, Parker, Kans.

$8 BUYS deed part oil 10 acres, Oklahoma County—MANY WELLS NOW DRILLING. Joe Milam, Dept. A-B, Oil Exchange Bldg., Oklahoma City, Okla.

WE HAVE a client contacting Eastern Oil Refiners for 12 years as sales engineer and Supervisor, capable of representing one or two manufacturers of essential accessory equipment to that trade beginning January 1.
If you want active representation for Eastern and Export trade, write or wire us at once. Communications confidential.
K. H. Constant
420 Lexington Ave., New York City

WANTED
INDEPENDENT REFINERY
Connection handling refinery's output. Chicago Hdqts. Box 7, Earlsboro, Okla.

WANTED—Seismic shot holes, shallow production or core drilling contracts. RITTER-DUGAN Drilling Co., Perry, Okla.

WITH $10,000 CAPITAL—Believe can make a profit of $100,000 in six months time trading in commodities. Time is here now. Years of experience. GREGG SNYDER, care James E. Bennett & Co., 25 Beaver St., New York

OIL located before drilling. Geophysical method. Topgodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

CLASSIFIED WANTS

Read by Oil Men Everywhere

BUSINESS OPPORTUNITIES

SHARES $50, payable $5 weekly. Complete well, 2,100 feet deep, thousand acres in Deussen's anticline. Oil sand 3,938. Believe no gamble. John Sigmund, Corpus Christi, Tex.

WE BUY, SELL AND SWAP
Real Estate and Oil Properties
Jno. T. Cross, Fort Worth, Texas

WANTED—Partner with $20,000 cash to develop gold mine in South America. Can move office to suit investor. Large tonnage of gold quartz in sight. Extraordinary high assays. Quick action necessary. Principals only. Address Davidson, First National Bank Building, Denver, Colo.

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Chicago Market Now At Critical Poin

Spot Market Practically at Standstill With Prices Fractionally Lower but Volume of Material Not So Large

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Dec. 14.—It is clearly apparent in Chicago district oil trade circles that the refiners and marketers are extremely reluctant to obligate themselves in any way for as much as a month ahead, and the feeling is strong that a crisis is at hand and that the next few days hold the turning point, either toward steady improvement based on clearer understanding of the whole industry's best interests, or toward demoralization with its inevitable train of bankruptcies, drastic remedial measures and interference. For this reason all eyes are turned toward St. Louis where three days hence, December 17, there will be a meeting of the board of directors of the American Petroleum Institute, called by President Amos L. Beaty, who told the directors that the industry is on the brink of a catastrophe. In Chicago it was indicated that the subject of remedial legislation would feature at this meeting. The belief that the best interests of the country as well as of the petroleum industry are badly served by "outgrown" legal restrictions has not only become almost universally accepted by minor and major interests alike, but has since the outset of the present situation become a favorite topic for discussion in this district.

National Parley Sought

Strong support has appeared in Chicago district and elsewhere in the territory for the plan of a national meeting, preferably in Texas, in which State the Federal Governments should "get together" with the oil industry "to take an inventory of the oil business and decide upon such measures as may be deemed necessary to prevent a recurrence of depressed conditions of the past year and to permit this basic industry to aid all other business in the United States to regain a solid and firm footing," a plan suggested by Andrew M. Rowley in The Oil and Gas Journal of December 10.

What Small Refiners Say

At the current tank car gasoline prices, according to the refiners themselves, it is impossible to realize a profit on operations. In fact, with the U. S. Motor material moving in small lots at 3 cents and under, the refiners are losing money. As one of these operators put it: "When crude oil was selling for 20 cents we could market U. S. Motor at 2 cents and still make a profit, but now that we must pay 80 cents for our crude oil, or four times as much as formerly, the current gasoline tank car markets spell ruin, and I can say truly that we small refiners have never been in more difficult circumstances." While these refiners are anxious to see the price of crude cut, they admitted freely that those companies with production interests would suffer and that eventually the remedy of a crude price cut, per se, would bring about a repetition of the gasoline tank car markets of this year when cheap crude was paralleled by 1½-cent gasoline.

See Firm Crude Oil Market

One of the leading market authorities expresses the belief at this time that the crude oil markets will hold to present prices. It is his opinion that every effort will be made to prevent a general price cut, although he does not fail to point out the danger of local concessions by producers to refiners. "As long as the crude oil is produced," this marketer pointed out, "it has to be sold and it can only be hoped that producers who find their outlets closed down because of the disparity of the crude price to the gasoline tank car price will not lose their heads and snatch at today's dollar at the cost of their entire future."

"There's no reason why today's 3-cent gasoline should not be selling for 5 cents," this marketer said, "and it is surely a peculiar business man that would concentrate his efforts on levelling down the markets on the crude material rather than take advantage of the favorable position of this material to move up the price of the finished product. The finished product is then braced by the crude material and the latter has been demonstrated to be more amenable to constructive influences and less exposed to legal criticism than is the case at this time with manufactured products. Crude oil production, a moment's thought will show, represents much more than a tremendous financial investment and its condition is strongly reflected in the refined products markets. If refiners and marketers have not learned a lesson from the happenings of the past season we are in for the most terrific crash in the history of our industry."

Movement Not Dumping

Those few refiners who are asking distributors and brokers to name their own prices on 58-60 U. S. Motor and 62-64 400 endpoint gasoline, have stopped running crude oil to their stills and do not, it is reported, plan to resume refining operations for some time to come. They are, it is said, working to convert their comparatively heavy gasoline stocks into ready cash to meet immediate obligations. Offers of this kind have been expected and their appearance has not caused undue alarm for several reasons. In the first place, distributors and brokers have avoided making bids which would bring the price of the gasoline below 3 cents to the trade, and again, the fact that the buyers are making efforts to retain the good will of the refiners shows that the future of these refiners is not dispaired of. It also points to the fact that such "distress" offerings are not so numerous as to cause the buyers misgiving and force them to seek much wider margins of safety in their purchases.

Adjustment Slow

However, if the subsequent action of a number of resellers is an indication, less restraint has been shown in the matter of arriving at a price when this gasoline is offered to the trade, the quarter of a cent or three-eighths of a cent profit first contemplated shrinks to an eighth of a cent and the spot market price slips from 3¼ to 3⅛ cents and lower. It must not be overlooked, however, that this is the gasoline which a very small number of refiners are liquidating at a time when the termination of summer demand has slowed down contract business and shelved the open market activity. The "distress" gasoline has been netting the refiner 2¾ to 2⅞ cents, Group 3, and the resellers' failure to fully appreciate the changed demand situation is responsible for sales below 3 cents to the trade and the shading of price offers at the close of last week to 2⅝ cents, to the refiner.

See Prospects of Betterment

A Chicago marketer's offer to take 50 cars of U. S. Motor gasoline over the next 30 days at 2½ cents from a Texas refiner has been turned down, and this is another straw in the wind showing that one can look to the future of the markets with a modicum of optimism without endangering one's classification among the sane. A report that a down state distributor had bought a considerable quantity of 62-64 400 endpoint gasoline last week at 3⅛ cents, brought to light the fact that this distributor had canvassed Chicago sellers on this material and on U. S. Motor without doing business, pointing to a more or less unexpected firmness on the part of the Chicago marketers.

Interest in Blend Reviving

Among the marketers who handle most of the trackage station accounts there has been a revival of interest in the blended gasoline. Aside from their growing use in "pepping up" the cut-price motor fuel, natural gasolines are being blended with naphtha. One refiner has found that he can produce a suitable motor fuel by blending an unusual type of natural gasoline with 58-60 437 endpoint gasoline. The natural gasoline used contains a considerable percentage of butane, has a Reid vapor pressure of 20 pounds, a gravity of 90.1 degrees, and, according to the refiner, a recovery of 97 per cent. Butane taken from a stabilized product has probably been added to this material, however, the refiner says that the motor fuel containing 15 per cent of this natural gasoline has a vapor pressure not exceeding 12 pounds and proves highly efficient in the automobile engine.

Octane Developments

It became evident this week that several major refiners are studying the progress of the large refiners who have recently placed a "70 octane" gasoline at their stations at the regular grade price, with a view of following suit or deciding definitely against such a move. As one representative of a major interest said, "We are going to see if the 70 octane regular grade sellers can keep it up and balance their operations successfully before we make the move." It appears that the prevailing thought in Chicago district oil trade circles is that the refiners who are offering the high antiknock gasoline at their regular pumps are utilizing all the cracked gasoline available and are running huge quantities of straightrun gasoline to storage. One major refiner, who has a regular grade of slightly better than 65 octane number but who is one of the larger tank car sellers, admits this to be a fact in his case. However, it is felt that the elevation of the antiknock rating of the regular gasoline will be permanent and that the solution for the refiner lies in reforming a large part of the straightrun product.

The Straightrun Gasoline Problem

Several methods of disposing of the straightrun gasoline are being discussed in Chicago district oil trade circles. It is apparent that the "third grade" outlet will not take care of additional diversions of low octane gasoline produced in ordinary refinery distillation, and the most obvious solution is the running of a wide naphtha (or gasoline) cut from the crude oil fractionating towers to cracking units. Another solution is to flash off the lightest ends of the crude oil and then run the crude to the cracking units.

The settlement of a suit in Denver last week in favor of a marketer of a cracked gasoline of 74 octane number whom it was sought to restrain from coloring his product red because nonethylized, is held to be an important recognition of the superior characteristics of cracked gasoline which make it classifiable as a premium product. The smaller refiners in the territory, according to their own statements, have been agreeably surprised to find that they can make installations at their plants to keep with the modern trend in motor f at a cost which would have b ridiculously low a little more than a y ago. It is reliably reported that gasoline carried in the Great Lakes has been raised to 62 octane numb In Detroit the newspapers last week c ried the announcement of "The N Blue Sunoco, a Bolt from the Blu which is reported to have an octane r ing of 72 and sells at the price of t regular grade.

This is a new interest for Detroit a it is wondered what the other majo operating in that district will do. T city has been a hot bed of price cutti and one of the larger independents h been selling Rumanian gasoline. La week this independent made a two-d offer to give a gallon of gasoline fr with each purchase of 8 gallons and th move was promptly met by the majo who reduced the price of their thi grade 1.4 cents for the two days. T cost of the Rumanian gasoline is r ported at various figures, thus: 2 cents at refinery; 0.25 cent to Co stanza; Constanza to Detroit (wate way), 1.7 cents; total 4.73 cents at D troit. Or: 2.67 cents Constanza; 0.5 ce to Baltimore; 0.25 cent terminal charg at Baltimore; 2.31 cents, freight fro Baltimore to Detroit; total 5.73 cent Rumanian gasoline purchased since Se tember 30, by this independent tota 2,646,000 gallons, according to a reliab source. It is understood that Chica brokers and distributors are no longe interested in handling the imported gas line, although there was talk of this few weeks back.

Among the Price Cutters

The sudden slump in consumption a the advent of inclement weather has n yet had the effect of making the opera tors of price-cutting stations resort to un derselling methods to keep up their dwin dling gallonage. However, there are in dications that the practice of giving awa premiums ranging from other petroleum products to trinkets and automobile serv ice beyond the usual bids for good will i increasing and will have to be dealt wit by the larger marketers. Prices on th third-grade gasoline have been cut at sev eral points in the territory. At St. Lou the service station posting was reduce 1.9 cents; at Davenport and associate points the price was slashed 3.1 cent and at Cedar Rapids the cut was 2 cents at the service station. Price cut on the regular grade were made at th following points: Des Moines, from 14 cents to 12.9 cents; Saginaw, from 15 cents to 14.6 cents.

Canadian Gasoline Buyers

The effect of British financial cond tions is reflected in transactions made b distributors of Chicago district with Ca nadian buyers. The increase in the ra of money exchange to 20 per cent give us the following figures as the price con sideration of American gasoline in th dominion: Gasoline routed from easter points, price at refinery, 4.125 cents transportation, 2.029 cents; differenc for imperial gallon, 1.03 cents; tax, cents; exchange, 1.26 cents, and excis 0.5 cent; total, 11.944 cents, tank ca price on the gasoline. The tank ca price of gasoline at this point, Toronto is nominally 14 cents a gallon.

Gasoline Tank Car Markets

The outcome of the current marke conditions in respect to gasoline tank ca price depends, it is held, upon the actio taken by major refiners. The larger in terests, it is said, have not curtaile

(Continued on Page 80)

Effort to Stabilize Eastern Markets

Two-Cent Reduction in Posted Quotations on Tank Wagon and Service Station Gasoline. Cut Confined to New York City Area

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Dec. 14.—Major companies operating in the Metropolitan New York area launched a determined effort to stabilize the retail situation during the past week, with a 2-cent reduction in posted quotations on tank wagon and service station gasoline. The cut was confined to the New York City area where price cutting has been steadily on the increase during recent weeks, and the revision followed by but a few days a half-cent increase in refinery quotations.

The reduction in the local gasoline market was inaugurated by Standard Oil Co. of New York, and followed by other interests. Although the cut was ostensibly for the purpose of correcting a situation brought about by price cutting by small independents, it was significant that the shading was by no means confined to the independent dealers, but on the contrary definitely involved two or three of the larger units which have been affording one another stiff competition for some time.

The refinery situation in the East underwent little important modification during the week. Refinery gasoline, if anything, appeared to have softened a little, notwithstanding the half-cent increase in posted prices during the preceding week, and it was possible to shade posted prices slightly in some quarters. Open weather had stimulated demand, however, and a continuance of favorable weather conditions, it is expected, will take up the slack and bring the general market up to posted levels. A sudden spell of bad weather, prolonged for any period, would by the same token accomplish just the opposite.

East Coast refinery operations continue on a curtailed scale, and there is little likelihood of any pronounced increase in refinery runs until well into the spring season. Refiners have succeeded in paring surplus stocks of most products to "working stock levels," and every effort will be made to continue this favorable statistical position.

Refinery Gasoline

Leading refiners are quoting 65 octane number gasoline and better at 6½ cents, in tank car lots, f.o.b. refinery terminals, although gasoline of this quality is offered by one or two sellers at 6 cents. Most sellers, however, quote the 6-cent price on gasoline not coming up to 65 octane number minimum.

There was some increase in tank car movement, and jobbers were operating a little more freely. The easier tendency which developed in the refinery market at the week-end tended to slow down trading again, with jobbers inclined to carry only sufficient supplies for prompt needs pending further clarification of the price situation.

Premium gas sales continue on the increase at refineries, and tank car movement of the higher grades is showing a greater percentage gain than that credited to the regular grades of motor fuel. The gallonage of premium fuels for the full year is expected to materially exceed that of regular grades, from the standpoint of percentage increase over 1930.

Tank Wagon Gasoline

The 2-cent-per-gallon reduction in tank wagon and service station gasoline initiated by Socony and followed by other major marketers was the outstanding feature in the week's market. The price-cut affected only the Metropolitan New York area, taking in New York City, Westchester and Long Island. In the remainder of the territory, prices were firm, the market being advanced at several points in Connecticut coincidental with the reductions in New York City territory.

There was an improved demand for gasoline, and deliveries by tank wagon showed a substantial gain over those for the previous week. Premium gasoline sales in particular showed a sharp jump in gallonage.

The competitive situation in the New York City area underwent an important change with the acquisition by Colonial-Beacon Oil Co., subsidiary of Standard of New Jersey, of an important retail chain of more than 50 service stations in this territory. The stations acquired previously handled Socony gasoline and products.

Another important development in the tank wagon picture was the reported acquisition by Pan American of a number of additional service stations in the vicinity of Boston and Providence. Pan American has been steadily growing in importance as a major factor in the New England territory during the recent years, and the current acquisitions indicate further expansion in the retail field in that area is contemplated.

A number of upward revisions in gasoline tax rates in East Coast territory are looked for in the near future, including New York state and Pennsylvania. Coming at a time like the present, marketers are apprehensive over the poss.ble effects of the higher tax rates on gasoline consumption.

Kerosene

Cold weather has sharply stimulated kerosene consumption, and refiners report that 41-43 water white is moving out in steadily increasing quantities in the tank car market at the recently advanced price of 6 cents per gallon, f.o.b. refinery terminals.

Retail demand for kerosene, naturally, has kept pace with the greater activity in the refinery market, and tank wagon deliveries are currently running at the highest levels attained thus far in the season. Kerosene consumption is unusually high in East Coast area this winter, owing to current economic conditions, many consumers who normally burn coal now using kerosene heaters as an economy measure.

Fuel Oil

There is a steady movement of bunker "C" oil reported locally, and the market holds unchanged at 60 cents per barrel, in bulk, f.o.b. refinery terminals in the New York harbor district. Owing to a typographical error bunker "C" was quoted in this report last week at 70 cents.

Marine interests are drawing stocks of bunker oil in good volume, and considerable contract business has been booked for 1932 by the major sellers. A continuance of present conditions in the shipping industry is expected to react substantially against fuel oil consumption during 1932, many vessels being laid up out of service owing to current low freight rates and the inability of some operators to obtain regular cargoes at rates sufficient to cover operating costs.

Industrial consumption of fuel oil is well maintained, and refiners are maintaining the 60-cent level on most of this business at shore stations. Movement of California and Gulf Coast fuel oil to East Coast ports has fallen off somewhat, which accounts for the firmer feeling in the industrial market, which was the scene of considerable price cutting a short time ago.

Diesel Oil

Conditions in the Diesel oil market showed no appreciable change and refiners continued to hold the market at $1.30 per barrel, bulk, f.o.b. terminals.

Contract deliveries of Diesel oil were holding up, but spot business appeared to be lagging somewhat.

Refiners are producing Diesel oil on a curtailed schedule and are endeavoring to balance production with consumption as closely as possible.

Gas Oil

Leading sellers continue to quote the market at 4 cents a gallon for 28 plus recycled gas oil, in tank car lots, f.o.b. refineries. The situation has been weakened somewhat by offerings of gas oil from the Gulf Coast and from California at low prices, and it is possible to buy spot oil in the tank car market at 3¾ cents.

Consumption of gas-oil is holding up to expected levels, but the market stability is affected periodically by offerings of distressed oils and it is evident the market cannot be expected to witness any real recovery until further substantial reductions have been made in surplus stocks.

Furnace Oil

Refiners report a good movement of domestic heating oil, minimum 32 gravity, at 3½ cents per gallon in tank car lots. Contract deliveries have picked up with the advent of colder weather, and volume of spot sales has also shown some increase.

Retail markets for domestic heating oils are showing the effects of the materially greater consumption during the past fortnight, and posted price schedules, which appeared tottering during the past month, are again showing signs of strength.

Lubs

Bright stocks were coming in for a little more demand, although sales in most instances continued confined to small lots for prompt shipment, buyers taking only sufficient oil to cover immediate needs. Prices were unchanged.

Demand for all grades of lub oils have been affected by the imminence of year-end inventories, buyers endeavoring to put off replacement buying until after the turn of the year in order to hold down inventories and strengthen their cash position.

Inventories this year are expected to be the smallest recorded for a number of years back, and buyers will be forced into the market for replacement supplies almost immediately.

Retail lub oil prices are reflecting the weakness which has developed in refinery markets in recent months, and many service stations which earlier in the year were charging motorists 25 cents per quart for bulk lub oil are now selling the same oil at 15 and 20 cents.

Paraffin Wax

Prices have eased off in sympathy with curtailed demand, quotations being lowered on all grades but 133-135 a.m.p., which held steady at 4 cents per pound. Revised quotations on other melting points follow: 120-122 a.m.p., 2¾ cents, off one-eighth; 125-127 a.m.p., 2⅞ cents, down one-eighth; 130-132 a.m.p., 3⅜ cents, off one-eighth, and 135-137 a.m.p., 4¼ cents, a reduction of one-quarter cent per pound.

Domestic demand has fallen off appreciable, due largely to the nearness of inventory time, but this development has been offset to some extent by a slight increase in activity in the export market.

Export Market

There were no cargoes reported closed at the Gulf, and prices were without change on both gasoline and kerosene. Two inquiries for part cargoes of 64-66 gasoline, about 3,000 tons each, were in the market from France early in the week, but subsequently withdrawn, the business presumably having been taken by Rumania.

Quotations on export grades at the Gulf appeared a little softer, and it was believed buyers were withholding inquiries in anticipation of early fractional declines in posted prices.

No further transactions in either Mexican or Venezuelan crude were reported, and quotations remained without change on these oils.

Rumania is expected to ship more than 7,500,000 additional gallons of gasoline to this country in the near future, the oil to reach Baltimore or Philadelphia for transshipment to Detroit by tank car.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended December 5 totaled 1,432,000 bbls., a daily average of 204,571 bbls., compared with 1,153,000 bbls., a daily average of 164,714 bbls., for the previous week and a daily average of 183,129 bbls. for the month of November. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast Ports—	
Baltimore	*247,000
Boston	123,000
New York	706,000
Philadelphia	202,000
Others	154,000
Total	1,432,000
Daily average	204,571
At Gulf Coast Ports—	
All ports	None
At Atlantic and Gulf Coast Ports—	
Total	1,432,000
Daily average	204,571
Daily average November	183,129

*Of this total, 65,000 bbls. of gasoline were imported on the Italian tanker Arcola, from Constanza, Rumania.

Distribution of total imports is as follows:

Crude	789,000
Gasoline	294,000
Fuel oil	349,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf ports for the week ended December 5 total 202,000 bbls., a daily average of 28,857 bbls., compared with 508,000 bbls., a daily average of 72,571 bbls. for the previous week and a daily average of 38,733 bbls. for the month of November. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast Ports—	
New York	142,000
Total	142,000
Daily average	20,286
At Gulf Coast Ports—	
All ports	60,000
Daily average	8,571

Petroleum Exports

There was some recovery in volume of export shipments of refined petroleum products during the week, naphtha, kerosene, gasoline and paraffin waxes in particular running into larger totals.

The following table shows principal exports of refined petroleum products from the port of New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Dec. 5	Nov. 28	Nov. 21
Gasoline	375,000	95,000	448,000
Naphtha	870,000	101,000	507,000
Kerosene	165,000	35,000	353,000
Fuel oil	13,000	320,000	395,000
Lubricating oil	766,000	825,000	1,890,000
Petroleum, ref'd.	540,000	210,000	2,360,000
	Pounds		
Petrolatum	3,000		
Paraffin wax	2,235,000	1,405,000	1,865,000
Refined	370,000	112,000	475,000
Scale	435,000		325,000
Lub. grease	1,505,000	425,000	800,000

There was comparatively little inquiry

in the local export market during the week, buyers mainly being interested in but small lots for near-by delivery. Some parcels of paraffin wax, both scale and fully refined, were closed for export during the week, although a good deal of this business will not be reflected in local export figures as the goods will move out of Philadelphia, Baltimore, or the Gulf.

Export prices for cased gasoline and kerosene are moving in sympathy with the fluctuations in the bulk market at the Gulf, although leading export operators here adhere to their practice of quoting cased products only direct to buyers on inquiry.

At Atlantic and Gulf Coast Ports—	
Total	202,000
Daily average	28,857
Daily average November	38,733

Distribution of total California oil receipts is as follows:

At Atlantic Coast Ports—	
Gasoline	142,000
At Gulf Coast Ports—	
Gasoline	60,000

There were only two cargoes of California refined products reported cleared from the Pacific Coast for the East, as follows:

For Philadelphia—55,100 bbls. of gasoline on the tanker Point Breeze (Atlantic Refining Co.).

For Providence—80,000 bbls. of gasoline on the tanker E. J. Bullock.

Charter Market

There was a sharp falling off in activity in the tanker charter market, relatively few fixtures being reported.

Rates continue at low levels, and there is still some distressed tonnage available on some runs.

Fixtures reported were as follows:

Steamer Dixiano (American), 2,613 tons net, gas oil, Gulf to North of Hatteras, 16 cents, December loading.

Motorship Literno (Italian), 7,000 tons, clean, Black Sea to French Atlantic, 7/-, option loading at Constanza, 6/9, North Atlantic 7/6, or Gulf 9/-, January loading.

Steamer Paul H. Harwood (American), 3,957 tons net, fuel oil, Gulf to Philadelphia, 16 cents, December loading.

CHICAGO MARKET NOW AT CRITICAL POINT

(Continued from Page 78)

their crude runs to stills although the smaller operators have done so or entirely closed down. However, it is reported that the major refiners are planning to reduce their runs. The spot market is practically at a standstill and while prices are fractionally lower than last week it is to be pointed out that the volume of material on the hands of sellers nowhere approaches the huge quantities which earlier in the season brought about a demoralized market structure. That is to indicate that the amount of gasoline present on the markets is not too large for handling by methods which have been attempted.

The open market quotations for the beginning of this week take into account the presence of the gasoline stocks at refineries described above, and the feeling is that these prices will not move lower. The 58-60 U. S. Motor gasoline of no octane specifications is offered at from 2⅞ to 3⅛ cents to the trade, while this gasoline of above 65 octane number brings from half a cent to five-eighths of a cent higher. Small amounts of this material with an octane rating of 70 are offered at a cent higher. The return of interest in blended gasoline, which is offered at 3 to 3¼ cents, has not materially affected the price of 60-62, 400 endpoint gasoline, although this product has moved down with U. S. Motor to a range of 3⅜ to 3⅝ cents. The 64-66, 375 endpoint gasoline unchanged at 4 to 4¼ cents, as does the 68-70, 360 endpoint material at 4¼ to 4½ cents. The 50-52, 450 endpoint naphtha is offered at 2⅝ to 2⅞ cents, a decline of a quarter of a cent.

Kerosene Tank Car Markets

The kerosene tank car markets are in a much better position and were aided last week by reports of new export business from the Gulf Coast. Prices are unchanged but firmer at 2⅛ to 2¼ cents for the 41-43 water white kerosene, and 2¼ to 2½ cents for the 42-44 water white material.

Fuel Oils and Gas Oils

Fuel oils and gas oils are showing additional strength although the seasonal conditions are not yet to the point where domestic as well as industrial users open up with consistent buying. The markets are due to advance steadily but there is no expectation that prices prevalent in past seasons will be approached due to the much lower demand from industrial sources. These markets are considerably different from the gasoline tank car markets in that where fuel and gas oils are concerned the buying is principally in the higher figures of the price range, with more or less undesirable material setting the low. The 18-22 fuel oil advanced slightly to a range of 25 to 32½ cents a barrel; 22-26 fuel oil is offered at 35 to 40 cents a barrel, and the 28-30 zero fuel oil is strong at 52½ to 57½ cents. The 32-36 industrial gas oil is offered at 1⅜ to 1⅝ cents; 32-36 gas oil, 1¾ to 1⅞ cents, and 38-40 straw distillate, 1⅞ to 2 cents.

MARK L. REQUA SAYS TARIFF PLAN IS WORSE THAN WASTE OF TIME

Mark L. Requa, general director, oil division, U. S. Fuel Administration 1918-1919, has addressed the following open letter to the board of directors of the American Petroleum Institute:

"I am in receipt of the mail vote concerning a tariff on oil. I shall not vote either for or against the proposal, as it will accomplish nothing, would get us nowhere, and is worse than a waste of time, as it fogs the issue. It is in fact very much like trying to extinguish a major conflagration with a horse syringe. A proposal for a tariff on oil, put forward by some members of the industry as a cure-all, is either a manifestation of astonishing ignorance or is nothing but hyprocrisy, opportunism, or chauvinism run wild.

"A large part of the trouble with the petroleum industry is because a substantial element seems to want its cake and wants to eat it at the same time. It cannot do both. It cannot produce with total disregard to consuming ability and expect at the same time to get a satisfactory price for the product. But hence and nevertheless the proposal for a tariff on oil which will not cure the situation, and will only tend to hide the real trouble.

Would Curb Imports

"Importation of oil from South America should, of course, be curbed, as part of a real program. To let South America run wild and keep choking back American production is obviously unfair, inequitable and without justification; but it is sheer nonsense to argue as some do that a tariff on oil will cure the situation. Imports from South America are perhaps one-seventh to one-eighth of United States consumption. Domestic wells now completed and shut in, or producing only a fraction of their capacity, can easily produce 10 times the amount now being imported. Overdrilling of domestic wells is the real trouble and curbing their production to meet market requirements is the only cure.

Wants Complete Program

"I am for a tariff on oil or rational industrial control of imports as part of a complete program. I think there is a better chance to get the latter than the former. I stand exactly where I stood when I went before the Commerce Committee in Washington in January and testified at my own request to the effect that I did not appear to protest against a tariff or an embargo, or to advocate either one of them, but I did want to say that neither a tariff nor an embargo would go to the roots of the trouble, nor would either cure the situation, and that I hoped no one would be so naive as to think it would.

"Looking back over the history of petroleum, I fail to find any time when the troubles of the industry would have been materially affected either favorably or adversely by a tariff. We have produced oil and shipped it to the four corners of the globe at prices so ridiculously below the intrinsic value of the product as to constitute one of the most indefensible pages in the history of the development of the natural resources of the United States. Only recently a friend of mine, and a well-known oil man, remarked to me sadly that if Santa Fe Springs had been controlled rationally and properly it would probably have produced two or three times as much oil at greatly enhanced profit, and that the gas wasted, if conserved, would have supplied Los Angeles for the next 30 years. And yet there are members of the industry who attempt to argue that there has been no economic waste in the production of oil and gas, and that a tariff will cure all of the troubles of the industry.

"The archaic and unwise laws under which the industry has operated have been largely to blame for the situation but I fail to find any adequate long-visioned attempt upon the part of the industry to formulate a comprehensive legislative program and demand its adoption. It is high time that such an effort be made, and meantime we should not delude ourselves into believing that a tariff is the answer; it is only one factor in the equation and not by any means the most important one.

"No one can have had a more intense interest in the prosperity of the oil industry than I have had. Whatever activities I have undertaken have always been in the hope that I might in some small degree contribute something that would tend to help the producer to receive a higher price for his product, the refiner and distributor a more satisfactory return upon invested capital, and the public a more satisfactory service over the longest possible period of time. I have not been optimistic enough, or perhaps foolish enough, to believe that my activities would materially, if at all, alter the situation. I do have, however, the satisfaction of knowing that the events of the last 10 years have entirely justified my position.

"Might I add that they have also justified the efforts of President Hoover in attempting to secure rational co-operation under the provisions of an interstate compact. The Colorado Springs Conference occurred now nearly two and a half years ago. Reading the transcript of the stenographic notes of that conference in the light of subsequent happenings, leads inevitably to the conclusion that the refusal of the governors and the petroleum industry to go forward under the proposals then offered constitutes one of the most tragic mistakes the industry has ever made. The history of those two and a half years has proved the correctness of President Hoover's analysis and the far-seeing wisdom that characterized his activity in calling that conference. Incidentally I might add that now after the loss of two and a half years' time, the industry, or at least some important parts of it, are trying to formulate a compact along the lines then suggested.

Industry Future in Own Hands

"The industry has its future in its own hands. It can make or mar its prosperity. To attain the former in full measure, it must co-operate in formulating a plan in connection with federal and state efforts that will make possible rational control of production. The fundamental is entirely simple and obvious. It can be stated in a sentence—rational co-ordination between the running of the drill and the requirements of the market and rational proration of oil from existing wells.

"It is not for lack of a tariff on oil that the petroleum industry finds itself in its present plight. It is due primarily and solely to domestic cut-throat competition in production, refining and distribution, carried on without regard to economic consequences. If and when the industry formulates a program that comprehends more satisfactory service to the public over a longer period of time, higher prices to the producer for a product that has been literally thrown away for lack of co-operative and co-ordinated efforts, due primarily to legal inhibitions, and enlists federal and state co-operation in making that program possible, it may well demand action that will check unlimited flow of foreign oil into the United States, and it may well ask of the federal government, if necessary, such co-operation as will make that program effective, both as to domestic and foreign production.

"The industry has been and continues to be its own worst enemy. It cannot lift itself out of the present depression by its boot straps. It can and should secure prompt and effective relief through intelligent and honest co-operation. Until it does help itself, until it does formulate a program that will really cure, it should not expect the federal government to apply measures that will afford no permanent cure and little, if any, relief. Any less action upon its part simply postpones the time for making a real program effective.

"Anyone familiar with the situation knows it has been and is deplorable, without justification, and detrimental alike to the public, the government and the industry. It may well be that adequate action now will be the motivating force that will start the nation on the road to prosperity, just as lack of action may plunge the industry into still further trouble and retard national recovery. Will the opportunity be grasped, will a real program be formulated and presented, or will the opportunity be lost? A satisfactory and adequate program governing all phases of the problem is needed. Will it be forthcoming? The industry can and should answer the question in the affirmative."

26 BROADWAY CLUB TO DINE

NEW YORK, Dec. 14. — Tentative plans for the annual dinner of the 26 Broadway Club have been announced by F. W. Hashagen, chairman of the entertainment committee. The yearly function, which is the high spot of the club's calendar and which is usually attended by 600 or 700 members and their guests, will be held this season in the grand ballroom of the new Waldorf-Astoria on the evening of February 4.

W. C. Teagle, president of the Standard Oil Co. (New Jersey), is expected to be on the dais and K. L. Patterson, president of the 26 Broadway Club, will serve as toastmaster.

STANDARD 51-YEAR MAN

FINDLAY, Ohio, Dec. 14. — Joseph Pattison, who has served the Standard Oil Co. of Indiana for 51 years, was honored at a testimonial dinner given by officials of the company at Lansing, Mich. Mr. Pattison, who was Lansing agent for the company between 1900 and 1923 and who has been on special assignments up to his retirement a few days ago, started work for the Standard August 7, 1880. His first job was in Detroit in the cooperage shop. P. A. Raupagh, manager of the Detroit division, which includes Lansing, presented Mr. Pattison a booklet bearing the signatures of the directors and officers.

AARON FERGUSON DEAD

CORSICANA, Tex., Dec. 14.—Aaron Ferguson, 81, discoverer of the Corsicana oil field, died last week. He was the last survivor of the group of men which organized the first oil company here. He was born in Columbus, Ga., and settled in Texas in 1872. He entered into partnership with Dr. S. W. Johnson, Ralph Beaton, Sr., H. G. Damon, Fred Fleming and H. Webster White to form the original oil company to operate in the Corsicana Field.

NATURAL GAS LINE EXPANSION DISCUSSED

(Continued from Page 32)

deviations from Boyle's law. A new formula has been developed in which deviation is a factor."

This new formula has resulted in greatly improving the accuracy of calculations of gas remaining in the structure. The Secretary says:

"When a fundamental basis was first proposed by the bureau for controlling and gauging natural gas wells to determine the open flow capacities of the wells without blowing gas to the atmosphere, many gas company engineers had no clear conception of the data necessary, and some questioned the authenicity of the results. However, in a recent open discussion of this problem natural gas engineers of nationally recognized standing stated that the principles of gauging gas well capacities as formulated by the bureau are working out satisfactorily in the majority of wells. Not only have these studies given the natural gas industry a proved method of gauging gas well capacities, but knowledge of back pressure relations has had other successful applications. Among these are: (1) Forecasting drilling requirements, (2) determining the presence of cavings in wells, (3) designing gathering systems, (4) determining operating pressures, (5) estimating costs of production, and (6) judging the advisability of storing gas in sands."

Speaking of the solubility of gas in oil the Secretary says, "The general concept has been that solubility of natural gas in crude oil increases in direct proportion to the pressure at which gas is put into solution. Recently the bureau obtained solubility data on well head samples of oil-gas mixtures from high-pressure wells in the Oklahoma City, Ketleman Hills and Ventura Avenue Fields. Preliminary tests show that when gas is released from these oil-gas mixtures more gas is obtained than would be expected from a straight line pressure volume relationship. This finding is important in all production problems.

"Another factor brought out by this study is the large percentage of shrinkage of a crude oil upon giving up its naturally absorbed gas. This may mean that when ultimate production of natural reservoirs is computed a shrinkage factor should be applied in addition to the depletion that can be measured in actual barrels of oil produced. The taking of oil-gas samples at the bottom of wells, together with measurements of the temperatures and pressures in the wells is the next step in solving this problem. A recording temperature and pressure instrument has been constructed and is being successfully operated."

Approximately 3,200 miles of pipe line with a daily capacity of 86,500 bbls. of gasoline have been constructed in the United States, the report states.

ROCKY MOUNTAIN AREA

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Bank, C SE NW, Section 17-36-6e, is shut down for the winter at 2,000 feet.

Carbon County

Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7s-22, Dry Creek, 1½ miles east of Ohio Oil Co.'s discovery well in the Dakota formation, looks as if it will make an important extension of that pool. Cores showed gas in the Frontier sands and oil in the Muddy. At 5,601 feet it topped the Dakota and at 5,620 feet the core was showing considerable saturation which looked as favorable as the discovery well at the same depth. No stop to test occurred as it is continuing to its objective, the Lakota sand, and at last reports was still coring in the Dakota at 5,681 feet.

Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7-21, half a mile to the southwest of the discovery, is drilling at 5,988 feet, probably in the top of the Sundance. The Lakota carried water.

Ohio Oil Co.'s No. 1 Kuchinski, NW SE NE, Section 15-7s-22, Golden Dome, cemented the 15½-inch at 335 feet and is standing.

Glacier County

R. C. Tarrant's No. 1 Hagland, NW cor. SW, Section 13-34-6w, Cut Bank area, set 8¼-inch at 2,559 feet and is cleaning out.

Teton County

California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is drilling at 2,745 feet.

Toole County

Hannah-Porter Co.'s No. 3 Iowa Holding, NW SE SE, Section 2-37-4w, Buckley-Border, is shut down at 2,738 feet, and Cosmos Petroleum, Inc.'s No. 3 Iowa Holding, NW NE SE, Section 2-37-4w, is straightening hole at 107 feet.

Yellowstone County

Peter Antonili's No. 1, NW cor. NE, Section 21-2n-25, Happy Hollow district, is bottomed at approximately 2,000 feet, just above the Dakota, and is drilling up casing shoe.

IDAHO

R. J. Berry and others' No. 1 Kramlich, NW SE NW, Section 5-9n-4w, Crystal Dome, Payette County, is drilling at 3,440 feet and has cut eight water sands with no show of oil or gas.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, Grand County, is drilling at 4,500 feet in salt.

Pipe Line Runs

Average daily pipe line runs for the week ended December 12:

	Bbls.
WYOMING	
Salt Creek	20,420
Big Muddy	1,730
Greybull	10
Dallas-Derby	650
Dutton Creek	70
Elk Basin	690
Ferris	40
Frannie	1,690
Grass Creek	2,120
Hamilton Dome	920
Hudson	330
LaBarge	1,010
Lance Creek	270
Lost Soldier	3,800
Midway	80
Oregon Basin	220
Osage	380
Pilot Butte	40
Rock River	1,740
Poison Spider	70
Teapot	20
Total Wyoming	36,300
MONTANA	
Buckley-Border	520
Cat Creek	940
Dry Creek	240
Kevin-Sunburst	4,720
Lake Basin	70
Pondera	1,480
Total Montana	7,970
COLORADO	
Florence	260
Fort Collins	910
Iles	380
Moffat	750
Orchard	640
Rangely	20
Tow Creek	320
Total Colorado	3,780
NEW MEXICO	
Rattlesnake	625
Hogback	470
Table Mesa	77
Artesia	500
Cap Rock	785
Hobbs	37,195
Jal	1,010
Lea City	1,820
Eunice	426
Texas Pacific	195
Total New Mexico	43,103
Total Rocky Mountain area	91,153
Total previous week	90,206
Difference	947

EAST TEXAS ALLOWABLE IS AGAIN REDUCED

(Continued from Page 22)

Asst. Atty. Gen. E. F. Smith of Austin as special counsel to assist the State in defending the injunction suit of E. Constantin and Brock-Lee Oil Co., attacking constitutionality of the State's proration law.

Atty. Gen. James V. Allred has been notified by Federal Judge Randolph Bryant suggesting that the Brock-Lee suit be tried in Houston January 4. He has given assent to the suggestion, and was informed attorneys for the company also agreed to the trial being held at Houston. It will be held before a three-judge federal court.

EAST TEXAS FIELDS

(Continued from Page 31)

through open tubing, total depth 3,615 feet.

G. & A. Oil Co.'s No. 1 Sabine Valley Church, top sand 3,499 feet, initial production 80 bbls. per hour through three-fourths inch tubing choke, total depth 3,524 feet. Gilcrease Oil Co.'s No. 1 Tooke, top sand 3,520 feet, initial production 125 bbls. in 45 minutes through open tubing, total depth 3,541 feet. Gulf Production Co.'s No. 2 Judge, top sand 3,519 feet, initial production 120 bbls. per hour through three-fourths inch tubing choke, total depth 3,545 feet.

Humble Oil & Refining Co.'s No. 6 T. B. Harris, top sand 3,518 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,560 feet. Same company's No. 4 W. W. Holland, top sand 3,550 feet, initial production 89 bbls. per hour through three-fourths inch tubing choke, total depth 3,585 feet. Same company's No. 4-B D. Johnson, top sand 3,556 feet, initial production 113 bbls. per hour through three-fourths inch tubing choke, total depth 3,585 feet. Same company's No. 4 G. W. Johnson, top sand 3,670 feet, initial production 97 bbls. per hour through three-fourths inch tubing choke, total depth 3,700 feet. B. K. Isaac's No. 1 C. L. Taylor, top sand 3,485 feet, initial production 110 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,521 feet. Joyner & Achre's No. 1 Missie Young, top sand 3,550 feet, initial production 110 bbls. per hour through three-fourths inch tubing choke, total depth 3,638 feet.

Magnolia Petroleum Co.'s No. 6 Davis, top sand 3,556 feet, initial production 160 bbls. per hour through three-fourths inch tubing choke, total depth 3,579 feet. Same company's No. 2 McGrill, top sand 3,625 feet, initial production 130 bbls. per hour through three-fourths inch tubing choke, total depth 3,636 feet. O. G. Oliphant and Tulsa Oil Co.'s No. 1 W. M. Wheeler, top sand 3,580 feet, initial production 116 bbls. in 10 minutes through open tubing, total depth 3,612 feet. O. W. R. Oil Co.'s No. 5-B C. E. Davis, top sand 3,551 feet, initial production 140 bbls. per hour through 1-inch tubing choke, total depth 3,585 feet.

B. F. Phillips' No. 2 Fee, top sand 3,576 feet, initial production 60 bbls. per hour through 1-inch tubing choke, total depth 3,637 feet. Rimmer and others' No. 1 Flint More, top sand 3,553 feet, initial production 165 bbls. per hour through 1-inch tubing choke, total depth 3,593 feet. Selby Oil & Gas Co.'s No. 2-B Snavely, top sand 3,551 feet, initial production 190 bbls. per hour through 1-inch tubing choke, total depth 3,595 feet. Stanolind-Simms and Continental Oil Companies' No. 2-C Flewellen, top sand 3,650 feet, initial production 79 bbls. in 30 minutes through open tubing, total depth 3,668 feet. Stanolind and Simms Oil Companies' No. 4 Fonville, top sand 3,513 feet, initial production 88 bbls. in 30 minutes through open tubing, total depth 3,555 feet. Stanolind Oil & Gas Co.'s No. 9 Persons, top sand 3,523 feet, initial production 30 bbls. in 10 minutes through open tubing, total depth 3,580 feet. Ortiz Oil Co.'s No. 1 Thad Snoddy, top sand 3,545 feet, initial production 200 bbls. per hour through open tubing, total depth 3,605 feet. Sun Oil Co.'s No. 1 J. J. Rippen, top sand 3,676 feet, initial production 60 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,702 feet.

Yount Lee Oil Co.'s No. 1-C M. Smith, top sand 3,537 feet, initial production 85 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,557 feet. Apollo Oil Co.'s No. 1 E. L. Walker, location abandoned. Arkansas Fuel Oil Co.'s No. 3 Calvin Brown, top sand 3,581 feet, initial production 96 bbls. in 30 minutes through open tubing, total depth 3,605 feet. California Consolidated Oil Co.'s No. 1 P. E. Barton, top sand 3,535 feet, initial production 100 bbls. per hour through one-half inch tubing choke, total depth 3,600 feet. Continental Oil Co.'s No. 5 Crews, top sand 3,616 feet, initial production 125 bbls. in 1 hour and 10 minutes through three-fourths inch tubing choke, total depth 3,618 feet. Empire Gas & Fuel Oil Co.'s No. 1 H. A. Lockhart, top sand 3,690 feet, initial production 60 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,698 feet. Everts and others' No. 1 P. Barton, top sand 3,537 feet, initial production 125 bbls. per hour through pinched tubing, total depth 3,590 feet.

Gulf Production Co.'s No. 4 Alexander, top sand 3,533 feet, initial production 80 bbls. per hour through three-fourths inch tubing choke, total depth 3,550 feet. Same company's No. 2 G. Davis, top sand 3,579 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,587 feet. Same company's No. 3 Holt, top sand 3,634 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,642 feet. Same company's No. 4 Willie Holt, top sand 3,571 feet, initial production 115 bbls. per hour through three-fourths inch tubing choke, total depth 3,579 feet. Same company's No. 3 M. B. Huey, top sand 3,515 feet, initial production 124 bbls. per hour through three-fourths inch tubing choke, total depth 3,533 feet. Same company's No. 1 C. Strong, top sand 3,700 feet, initial production 92 bbls. per hour through three-fourths inch tubing choke, total depth 3,707 feet.

J. E. Johnston's No. 1 F. Bantuelle, top sand 3,547 feet, initial production 40 bbls. in 30 minutes through 1-inch tubing choke, total depth 3,598 feet. Magnolia Petroleum Co.'s No. 7 Griffin, top sand 3,541 feet, initial production 44 bbls. in 5 minutes through 4-inch line and 1-inch tubing choke, total depth 3,565 feet. W. H. Brown's No. 1 N. Douglas, top sand 3,535 feet, initial production 125 bbls. per day pinched, total depth 3,572 feet. Shell Petroleum Corp.'s No. 3 H. T. Neal, top sand 3,551 feet, initial production 51 bbls. in 30 minutes through open 2-inch tubing, total depth 3,612 feet. Smith and others' No. 1 E. L. Walker, top sand 3,542 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,558 feet. Mary E. Stephens' No. 1 Abi McElroy, top sand 3,545 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,573 feet. Sun Oil Co.'s No. 2 M. T. Cole, top sand 3,523 feet, initial production 190 bbls. per hour through open tubing, total depth 3,546 feet. Winston Oil Co.'s No. 3 Paul Jones, top sand 3,655 feet, initial production 180 bbls. per hour through open tubing, total depth 3,659 feet.

Henderson County

Seven Wells Corp.'s No. 1 D. E. Hughes, dry and abandoned, total depth 4,441 feet.

Rusk County

Darby Oil Co.'s No. 2 C. E. Christian, top sand 3,724 feet, initial production 25 bbls. in 10 minutes through three-fourths inch tubing choke, total depth 3,734 feet. Griffith Brothers' No. 1 S. E. Brox, top sand 3,672 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,717 feet. Gulf Production Co.'s No. 9-C C. E. Christian, top sand 3,636 feet, initial production 122 bbls. per hour through three-fourths inch tubing choke, total depth 3,652 feet. Karona & Houston's No. 1 J. N. Peterson, top sand 3,636 feet, initial production 250 bbls. per hour through three-fourths inch tubing choke, total depth 3,640 feet. Jackson-Wise and Markham's No. 1 C. E. Christian, top sand 3,741 feet, initial production 200 bbls. per hour through open tubing, total depth 3,732 feet.

Magnolia Petroleum Co.'s No. 1 S. E. Brox, top sand 3,594 feet, initial production 108 bbls. in 15 minutes through 4-inch line on casing and three-fourths inch tubing choke, total depth 3,612 feet. Walton's No. 2 C. E. Christian, top sand 3,679 feet, initial production 25 bbls. in 10 minutes through 1-inch tubing choke, total depth 3,689 feet. Wheelock and Collins' No. 5 Dick Wells, top sand 3,669 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,689 feet. Arkansas Fuel Oil Co.'s No. 3 G. Ferguson, top sand 3,619 feet, initial production 59 bbls. in 30 minutes through open tubing, total depth 3,643 feet. Same

company's No. 4 Wheelis, top sand 3,650 feet, initial production 77 bbls. per hour through open tubing, total depth 3,685 feet.

British-American's No. 5 Kangerga, top sand 3,611 feet, initial production 300 bbls. in 20 minutes through tubing and casing, total depth 3,624 feet. Deep Rock Oil Co.'s No. 2 Stovall, top sand 3,611 feet, initial production 78 bbls. per hour through half-inch tubing choke, total depth 3,630 feet. Devonian Oil Co.'s No. 4 Alford, top sand 3,783 feet, initial production 85 bbls. per hour through three-fourths-inch tubing choke, total depth 3,793 feet. E. A. Dreebin's No. 1 Thrash, top sand 3,723 feet, initial production 110 bbls. per day pinched, total depth 3,762 feet.

Gulf Production Co.'s No. 1 Elmore Cole, top sand 3,801 feet, initial production 145 bbls. per hour through open tubing, total depth 3,811 feet. Same company's No. 6 Ida Holt, top sand 3,809 feet, initial production 163 bbls. per hour through 1½-in. tubing choke, total depth 3,814 feet. Gulf States Production Co.'s No. 1 Giles, top sand 3,703 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,746 feet.

Humble Oil & Refining Co.'s No. 8 W. A. Mulliken, top sand 3,756 feet, initial production 122 bbls. per hour through three-fourth-inch tubing choke, total depth 3,804 feet. Same company's No. 4 W. L. Price, top sand 3,680 feet, initial production 95 bbls. per hour through three-fourths-inch tubing choke, total depth 3,778 feet. Same company's No. 5 W. L. Price, top sand 3,675 feet, initial production 74 bbls. per hour through three-fourths-inch tubing choke, total depth 3,772 feet. Johnson and others' No. 2 C. W. Mullins, top sand 3,762 feet, initial production 100 bbls. per hour through 1-inch tubing choke, total depth 3,780 feet. London Petroleum Co.'s No. 1 J. L. Maxwell, top sand 3,737 feet, initial production 120 bbls. per hour through 2½-inch tubing choke, total depth 3,762 feet. M. & G. Oil Co.'s No. 1 Teague, top sand 3,809 feet, initial production 165 bbls. per hour through 1-inch tubing choke, total depth 3,815 feet.

Mid-Kansas Oil & Gas Co.'s No. 4 Cora L. Graham, 250 bbls. per hour through open tubing, total depth 3,619 feet. Same company's No. 5 E. E. Moore, top sand 3,610 feet, initial production 90 bbls. per hour through open tubing, total depth 3,655 feet. R. M. V. Oil Co.'s No. 1 J. W. Flannigan, top sand 3,620 feet, initial production 85 bbls. in 30 minutes through open tubing, total depth 3,682 feet. Reteal Drilling Co.'s No. 1 Cooper, top sand 3,561 feet, initial production 70 bbls. in 24 hours through open 2½-inch tubing, total depth 3,630 feet. Risinger and others' No. 1 L. Barton, top sand 3,808 feet, initial production 125 bbls. per hour through three-fourths-inch tubing choke, total depth 3,812 feet.

Sombar Oil Co.'s No. 2 A. P. Finney, top sand 3,673 feet, initial production 95 bbls. per hour through open tubing, total depth 3,752 feet. The Texas Company's No. 6 Wilson, top sand 3,658 feet, initial production 93 bbls. per hour through three-fourths-inch tubing choke, total depth 3,670 feet. Ward Oil Co.'s No. 3 A. P. Finney, top sand 3,696 feet, initial production 85 bbls. per hour through open tubing, total depth 3,734 feet. Same company's No. 7 E. S. Thrash, top sand 3,773 feet, initial production 113 bbls. per hour through open tubing, total depth 3,809 feet.

Smith County

Humble Oil & Refining Co.'s No. 4 M. C. Thompson, top sand 3,637 feet, initial production 106 bbls. per hour through three-fourths-inch tubing choke, total depth 3,642 feet. Mid-Kansas Oil & Gas Co.'s No. 8 M. M. Cole, top sand 3,647 feet, initial production 260 bbls. per hour through open tubing, total depth 3,656 feet. Ignatius P. O'Neal's No. 1 Mayfield, top sand 3,795 feet, initial production 55 bbls. in 18 minutes through open tubing, total depth 3,800 feet. Nelson Pruitt's No. 2 M. L. Thompson, top sand 3,677 feet, initial production 100 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,683 feet.

Sun Oil Co.'s No. 1 T. M. Sloan, top sand 3,673 feet, initial production 125 bbls. per hour through open tubing, total depth 3,685 feet. The Texas Company's No. 3 Blackwell, top sand 3,660 feet, initial production 110 bbls. per hour through tubing, total depth 3,678 feet. M. M. Rowan and others' No. 1 Gibson, dry and abandoned, total depth 3,610 feet.

Upshur County

Harry W. Black's No. 1 J. M. Burrough, top sand 3,700 feet, initial production 85 bbls. per hour through open tubing, total depth 3,708 feet. Glasscock and others' No. 1 Burrough, top sand 3,691 feet, initial production 125 bbls. per hour through 1-inch tubing choke, total depth 3,734 feet. Humble Oil & Refining Co.'s No. 3 Phillips, top sand 3,605 feet, initial production 35 bbls. per hour through three-fourths-inch tubing choke, total depth 3,640 feet.

Van Zandt County

The Texas Company's No. 3 R. V. White, initial production 200 bbls. first 24-hour gauge after checked for proration, total depth 2,936 feet.

Distribution report of East Texas week ending December 7:

SHIPMENTS THROUGH MAIN TRUNK LINES

Company, size and location—	Bbls.
Atlantic P. L. Co., 10-in., Atreco	16,259
Arkansas P. L. Co., 8-in., Shreveport	4,890
Atlas P. L. Co., 8-in., Shreveport	3,277
Gulf P. L. Co., 2 and 8-in., Oklahoma	20,297
Gulf P. L. Co., 2 and 8-in., Port Arthur	13,022
Humble P. L. Co., 2 and 10-in., Shreveport	30,593
Humble P. L. Co., 2 and 8-in., Todd	55,171
Liberty P. L. Co., 8-in., Rusk	4,111
Magnolia P. L. Co., 10-in., Center	21,306
Magnolia P. L. Co., 12-in., Corsicana	43,092
Shell P. L. Corp., 10-in., Houston	20,064
Sinclair-Texas Pipe Line Co., 12-in., Teague	40,752
Sun-Yount Lee P. L. Co., 10-in., Sun City	19,578
Texas P. L. Co., 10-in., Douglass	21,742
Texas Empire P. L. Co., 12-in., Port Arthur	38,397
Tidal Ref. Co., 6-in., Carthage	2,177
Total	348,728

SHIPMENTS TO EAST TEXAS REFINERIES

Arrow Ref. Co., Overton	S.D.
Beacon Ref. Co., Henderson (S.D.)	1,452
Boone Ref. Co., Arp	289
Central Ref. Co., Friar Switch	S.D.
Constantin Ref. Co., Overton	S.D.
Diamond Ref. Co., Overton	246
East Texas Ref. Co., Longview	5,818
East Texas Ref. Co., Friar Switch	4,605
Gladetex Ref. Co., Gladewater	127
Gladewater Ref. Co., Gladewater	116
Kilgore Ref. Co., Kilgore	627
W. B. Mackey Refinery, Gladewater	373
Overton Ref. Co., Overton	871
Petroleum Refractionating Co., Longview	S.D.
Sinclair Oil & Gas Co., Longview	1,100
Slack Ref. Co., Camp Switch	S.D.
Southern Oil Ref. Co., Reed Switch	549
Taylor Ref. Co., Tyler	2,719
Total	18,692

SHIPMENTS BY TANK CAR

Houston Oil Co. from Kilgore	870
Cherokee Chief from Gladewater	118
Tidal Ref. Co. from Camp Switch	89
Total	1,077
Total daily average distribution	368,497
Total daily average production	410,860
Daily average to storage	42,363

NATIONAL TRANSIT DIRECTORS

D. J. Bolton has been elected a director of National Transit Co. and F. G. Zimmermann of Oil City a director in National Transit Pump & Machine Co., to fill vacancies caused by the resignation of T. L. Blair.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 29)

Magnolia Pet. Co.'s No. 1 Arnold, 330 ft. from S and E. Sec. 149, Blk. 3, I.&G.N. Sur. ..... Cellar.

Mid-Kansas O. & G. Co.'s No. 1 Carpenter, 330 ft. from S and 990 ft. from W. Sec. 37, Blk. 25, H.&G.N. Sur. Drlg. 640 ft.

Nelson et al's No. 1 Crews, 330 ft. S and E, NW. Sec. 12, Blk. 25, H.&G.N. Sur. ..... S.D. 2,619 ft.

Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur. ..... S.D. 2,365 ft.

Prairie O. & G. Co.'s No. 1 Morse, 417 ft. from N and 453 ft. from E, Sec. 4, Blk. 26, H.&G.N. Sur. ..... Drlg. 2,300 ft.

Pulse-Shell Pet. Corp.'s No. 1 Wright, 330 ft. from S and W of Sec. 13, Blk. 3, I.&G.N. Sur. ..... S.D. 2,643 ft.

Saunders et al's No. 2 Sullivan, 822 ft. from W and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Will plug back to 3,275 ft. and shoot.

Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Drlg. 2,035 ft.

Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.

Quicksand Oil Co.'s No. 1 Chapman, 250 ft. from N and E, Sec. 69, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,275 ft.

Vulcan Corp.'s No. 1 Carpenter, 330 ft. from S and E, Sec. 25, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,315 ft; show oil 2,285 ft.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.

Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ..... S.D. 450 ft.

Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... S.D. 3,064 ft; show oil and gas 2,996-97 ft; completed no gauge.

Smith & McDaniel et al's No. 4 Pitcher, 990 ft. from S and 330 ft. from W, Sec. 19, Blk. M-21, Sur. ..... T.D. 2,983 ft; standardizing.

Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... Top pay 3,070-95 ft; 500 ft. oil in hole; S.D. 3,115 ft.

Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

MOORE COUNTY

Gulf Prod. Co.'s No. 1 Burnett, 330 ft. from N and W, Sec. 356, Blk. 44, H.&T.C. Sur. ..... Cementing 7-in. csg. 3,324 ft.

Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Rig up.

Laurence et al's No. 1 Greenwald, 330 ft. from N and W, Sec. 277, Blk. 44, H.&T.C. Sur. ..... Cellar.

Magnolia Pet. Co.'s No. 1 Nield, 330 ft. from S and E of N½, Sec. 361, Blk. 44, H.&T.C. Sur. ..... Rigging up rotary.

Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.

Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.

Texhoma Natural Gas Co.'s No. 2-P Sneed, 265 ft. E and 3,685 ft. of SW cor. of M. George Sur. but in Sec. 77, Blk. 3, G.&M. Sur. ..... Building rig.

Texhoma Nat. Gas Co.'s No. 2 Coon, C, Sec. 151, Blk. 44, Sur. ..... Standardizing 2,439 ft.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.

Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. ..... S.D. 2,945 ft.

PARMER COUNTY

Magnolia Pet. Co.'s No. 1 Wilson, 330 ft. from N and W, SE, Sec. 72, H. Kelly Sur. ..... Drlg. 2,330 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... Drlg. 2,505 ft.

Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... S.D. for 6-in. csg. 2,150 ft.

Devore & Robinson's No. 1 Sitter, 2,310 ft. from S and E of E½ of Sec. 33, Blk. 24, H.&G.N. Sur. ..... Estimated 80,000,000 ft. gas; T.D. 2,263 ft; drlg. plug.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 29)

FISHER COUNTY

Cranfill & Reynolds' No. 1 George, 400 ft. from N and 380 ft. from E, Sec. 200, Blk. 1, B.B.&C. Sur. ..... Total depth 3,732 ft.; underreaming.

Cranfill & Reynolds' No. 1 Snipe, 330 ft. from N and W lines of Sec. 195, Blk. 1, B.B.&C. Sur. ..... Drlg. 2,450 ft.

Texas Inland and Zingling's No. 1 Wm. Flannigan, 240 ft. from E and 165 ft. from W line of S 20 acres of SW Sec. 20, B.B.B.&C.R.R. Sur. ..... Material.

GARZA COUNTY

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Fishing for 6⅝-in. csg.; T.D. 1,320 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. Spudded and S.D.

Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 125, Blk. 29, W.&M.W.R.R. Sur. ..... T.D. 3,292 ft.; will plug back to 1,700 ft.

L. C. Harrison et al's No. 1 L. C. Denman, 2,310 ft. from S line and 330 ft. from E line of Sec. 10, T.&P.R.R. Sur., Blk. 30 ..... Drlg. 505 ft.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,951, Blk. 28, H.&T.C. Sur. ..... Shut down 5,627 ft.; to run 8¼ in. casing.

Ellis Flanery Corp.'s No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Shut down 2,900 ft.

Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Bailing hole 6,795 ft.

Straughn & Adkins Bros.' No. 1 Lee, 1,080 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Total depth 1,125 ft.; to test shallow sand; set 8¼-in. casing.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... S.D. 1,005 ft.; temporarily abandoned.

Johnson's No. 1 Huddleston, 165 ft. from S and W of N half of N half of Sec. 39, Blk. 18, T.&P. Sur. ..... Rig up.

Young et al's No. 1 Harrell, 150 ft. from S and E of N half of Sec. 8, O.A.L. Sur. ..... Location.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... S.D. 810 ft.

Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Drlg. 3,900 ft.

Fairbe & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... S.D. 2,500 ft.

Lewis & Siegel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur.—Spudded and shut down.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur.—S.D. 3,385 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur.—Waiting on cement to set 2,665 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur.—S.D. 2,860 ft.

PECOS COUNTY

Anderson's No. 1 Le Fever, 330 ft. from N and W of Sec. 73, Blk. 8, H.&G.N. Sur.—Drlg. 500 ft.
Cardinal Oil Co.'s No. 1 J. H. Tippett ("J"), 1,980 ft. from the S line and 990 ft. from the W line of Sec. 2, D. F. Robertson Sur.—Plugged back to 600 ft.; to pump.
Culbertson Bros.' No. 4-B Monroe, 1,290 ft. from N, 1,140 ft. from E Sec. 39, Blk. 194, G.C.&S.F. Sur.—Location.
Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur.—Shut down 670 ft.
Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur.—Material.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. from S and 1,000 ft. from E Sec. 12, Blk. 2—Total depth 4,810 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur.—Spudded and S.D.
F. McDorman et al's No. 1 Ray Roberts et al, 2,310 ft. from S and E lines of Sec. 22, Blk. 59, P.S.L. Sur.—Shut down 65 ft.
James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 73—Shut down 3,320 ft. (S.L.M.).
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 6, Blk. 51, Twp. 10, T.&P. Sur.—S.D. 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,045 ft. from NW in J. Heil Sur. No. 519—S.D. 3,700 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur.—Shut down 4,500 ft.; running 6-in. casing.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur.—S.D. 5,060 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur.—S.D. 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur.—S.D. 5,041 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur.—Spudded and S.D
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 152, Blk. 97, H.&T.C. Sur.—Drlg. 3,755 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M-K-T Sur.—S.D. 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur.—Fishing for tools 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur.—S.D. 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from N and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur.—S.D. 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur.—S.D. 2,545 ft.
Sides et al's No. 1 Phelps, 2,157 ft. from N and 2,482 ft. from W Sec. 5, G. W. Turley Sur.—Shut down 200 ft.

TOM GREEN COUNTY

Andrews' No. 1 Pugh, 250 ft. from N and 5,184 ft. from E, James Eldridge Sur. No. 73—Shut down 453 ft.
Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur.—S.D. 760 ft; S.O. and gas 726 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur.—S.D. 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2—S.D. 200 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft.—S.D. 5,360 ft.
D. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft.—S.D. 6,780 ft.

WARD COUNTY

Abell Bros.' No. 1 Sloan, 330 ft. from NW and NE Sec. 24, Blk. 5, H.&T.C. Sur.—Shut down 730 ft.
Alpine Oil & Dev. Co.'s No. 4 J. F. Boogher, 150 ft. from SE line and 150 ft. from the SW line of Tract 16, Sec. 11, Blk. 5, H.&T.C. Sur.—Rig.
Boogher's No. 1 fee, 335 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur.—Shut down 1,900 ft.
Atlantic O. & P. Co.'s No. 1 Archenhold, 2,310 ft. from NE line and 330 ft. from NW line of Sec. 23, H.&T.C. Sur., Blk. 5—Drlg. 2,310 ft.
Bradford-Bentley's No. 1 Beatty, 330 ft. from SW and NW of Sec. 3, Blk. 34, H.&T.C. Sur.—Top pay 2,238 ft.; making 3 heads per day, estimated 50 bbls.; total depth 2,450 ft.
Eppenauer's No. 1 Purcell, 365 ft. from SW and 1,650 ft. from SE of Sec. 17, Blk. 34, H.&T.C. Sur.—Drlg. 600 ft.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur.—Spudded and S.D
Gulf Production Co.'s No. 17-B Hutchings, 330 ft. from N and 1,650 ft. from W of S 370 acres of Sec. 5, Blk. F, G.M.M.B.&A. Sur.—Drlg. 1,186 ft.
Moran & Burkhart's No. 2 J. T. Sweatt et al, 3,810 ft. from the NE line and 1,170 ft. from the NW line of Sec. 12, Blk. 5, H.&T.C. Sur.—Drlg. 600 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur.—S.D. 715 ft.
Massie-Sturm's No. 1 Green, 330 ft. from NW and SW Sec. 4, Blk. 34, H.&T.C. Sur.—Location.
S. F. Owen's No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur.—Drlg. 530 ft.
Prairie Oil & Gas Co.'s No. 2 Edmonson, 350 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur.—Rig.
Sector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 32, Blk. A, G.M.M.B.&A. Sur.—S.D. 3,602 ft.
Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur.—Shut down 2,157 ft.; estimated 2,000,000 ft. of gas.
Sudderth & Carey's No. 1 J. H. Boogher et al, 150 ft. from SW and SE lines of Lot 24, Sec. 11, Blk. 5, H.&T.C. Sur.—Drlg. 115 ft.
Standolind Oil & Gas Co.'s No. 1 Brown, 330 ft. from NW and SW Sec. 26, Blk. B-29—Drlg. 2,497 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1—Swabbed 50 bbls. Nov. 30; total depth 4,666 ft.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur.—S.D. 755 ft.

WINKLER COUNTY

Miner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5—S.D. 4,640 ft.
Richardson's No. 1 Sealy, 330 ft. from S and W of Sec. 92, Blk. A, G.M.M.B.&A. Sur.—Spudded and shut down.
Joel Richardson's No. 1 S. M. Halley, 330 ft. from the S line and 1,650 ft. from the E line, Sec. 25, School Blk. B-13—Moving in machine.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 30)

Blalock and Hensley's No. 1 Tom Hensley, center of west 6 acres of 12-ac. tract, John Ruddle Sur.—Derrick.
Buchanan et al's No. 1 George Ritchie, 120 ft. N and 15 ft. W of Monsell and Currie's No. 1 Church Block No. 4, M. Dillard Sur.—Derrick.
Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur.—Rigging up.
Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,640 ft. from S of H. A. Holdt Sur.—Derrick.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur.—Derrick.
Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur.—Rigging up.
Bridwell and Fikes' No. 1 D. Lockett, 284 ft. E, 326 ft. N of SW cor. of 25-ac. lease, D. Ferguson Sur.—Derrick.
Byrd-Frost Oil Co.'s No. 1 Alexander and Strong, 330 ft. from S and E lines of 26-ac. tract, M. Tennison Sur.—Location.
Empire Gas & Fuel Co.'s No. 1 J. C. Bumpass, 330 ft. S along road from NW cor. and 330 ft. E of W line of lease, W. H. Castleberry Sur.—Set 6⅝-in. csg. 3,500 ft.
Empire Gas & Fuel Co.'s No. 1 A. Green, 330 ft. from N, 330 ft. from W line of lease, W. C. Wakeland Sur.—Top sand 3,595 ft.; T.D. 3,598 ft.
F. H. E. Oil Co.'s No. 1 R. Christian, 990 ft. from S line, 330 ft. from E line of 60-ac. tract, G. W. Hooper Sur.—Drlg. 3,000 ft.
Lewis Godlin's No. 1 E. L. Walker, 330 ft. N of road, 330 ft. from E line of 80.2-ac. tract, M. Dillard Sur.—Derrick.
Gulf Prod. Co.'s No. 1 M. F. Barker, 330 ft. S, 141 ft. E of NW cor. of 64-ac. lease, M. Dillard Sur.—Drlg. 1,230 ft.
Gulf Prod. Co.'s No. 1 J. S. Elder, center of E and W lines of 31-ac. tract, John Wilkinson Sur.—Bldg. derrick.
Harris et al's No. 1 E. T. Norton, center Block No. 17, H. R. Hokit Sur.—Drlg. 3,165 ft.
Harris et al's No. 1 J. E. Demoss, center of 1.5-ac. tract, H. R. Holdt Sur.—Testing 3,691 ft.
Jerry Hawkins' No. 1 Shilo Church, center 3-ac. tract, G. W. Hooper Sur.—Derrick.
Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur.—Derrick.
J. O. Hodges et al's No. 1 G. W. Ritchie, center of S 5 acres of N 10 acres of E 20 acres of Ritchie 40-ac. tract, Wm. Carlton Sur.—Waiting on cmt. to set 3,551 ft.
D. L. Hoffman's No. 1 Bumpass, 360 ft. from S line and 260 ft. from W line of 10-ac. lease, W. H. Castleberry Sur.—Abnd. hole 3,498 ft.; skid 24 ft. to the west.
Iowa-Payne's No. 1 W. H. York, 275 ft. from S line, 125 ft. from E line of lease, M. Dillard Sur.—Top sand 3,592 ft.; T.D. 3,599 ft.
Jackson and Bradstreet's No. 1 M. Young, center 2-ac. tract, J. R. Crosby Sur.—Rig up.
B. K. Isaac's No. 1 J. A. Tuttle, center of 4.5-ac. tract, H. Hathaway Sur.—Drlg. 1,318 ft.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur.—S.D. 700 ft.
Magnolia Pet. Co.'s No. 1 Foster, 330 ft. from W line and center of N and S lines of 29-ac. lease, W. G. Painter Sur.—Testing 3,600 ft.
Magnolia Pet. Co.'s No. 1 Redford, 330 ft. from N and W lines of 75-ac. tract, John Blair Sur.—Derrick.
Manzell et al's No. 1 E. L. Walker, center Blk. 54, M. Dillard Sur.—Waiting on cmt. to set; T.D. 3,543 ft.
E. G. Moren's No. 1 C. J. Dollahite, center of W 10 acres of 60-ac. tract, D. Sanches Sur.—Rigging up.
Morgan and McMinn's No. 1 H. L. Foster, 150 ft. W, 15 ft. N SW cor. Magnolia Foster lease, Wm. Painter Sur.—Running csg. 3,565 ft.
Natlie Kimsey's No. 1 C. C. Crews, 330 ft. from N line and center of E and NW lines of 60-ac. tract, L. Perkins Sur.—Derrick.
Navarro Oil Co.'s No. 1 E. L. Walker, 150 ft. out of W cor. of Block No. 1, M. Dillard Sur.—Drlg. 2,800 ft.
Pace Pet. Co.'s No. 1 Crim-Reynolds, Blk. 136, Kilgore Townsite, Mary Van Winkle Sur.—Spud.
Peterson et al's No. 1 Geo. Ritchie, 60 ft. from NE line, 60 ft. from S line of Blk. 3, M. Dillard Sur.—Waiting on cmt. to set 3,527 ft.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur.—Derrick.
Sam P. Shelborn's No. 1 Dula Martin, 380 ft. S line, 990 ft. from E line of lease, W. P. Chisum Sur.—Two degrees off at 3,733 ft.
Shell Pet. Corp.'s No. 1 Donnie Carr, 330 ft. from N and W line of 100-ac. tract, M. McCurry Sur.—Moving in material.
Shell Pet. Corp.'s No. 1 A. A. King, 245 ft. from N line, 550 ft. from E line of lease, Geo. A. Thompson Sur.—Coring 3,580 ft.
Simms Oil Co.'s No. 1 Bob Wood, 330 ft. from N and W lines of 100-ac. tract, J. Skillum Sur.—Derrick.
Standolind Oil & Gas Co.'s No. 1 Hobart King, 330 ft. from N line, 200 ft. from W line of 90.6-ac. tract, W. H. Hartt Sur.—Drlg. 2,703 ft.
C. R. Starnes' No. 1 G. C. Dunaway, center of Blk. 5, 115 ft. S. 475 ft. W SE cor. H. R. Hokit Sur.—Drlg. 1,700 ft.
Steen Drlg. Co.'s No. 1 W. D. Lacy, 330 ft. from S and W lines of 40-ac. tract, E. H. Gresham Sur.—Derrick.
Sun Oil Co.'s No. 1 Calvin Brown, 330 ft. from most southerly S line and middle of E and W lines of lease, L. B. Outlaw Sur.—Derrick.
Shano Oil Co.'s No. 1 S. G. Smith, 162 ft. from N and S lines, 330 ft. from W line of 17-ac. lease, W. H. Castleberry Sur.—Top sand 3,521 ft.; T.D. 3,561 ft.
Sun Oil Co.'s No. 1 J. E. Rollins, 1,492 ft. from N line, 1,492 ft. from S line, 539 ft. from W and E lines of 85-ac. lease, M. Scott Sur.—Location.
Tom C. Patten's No. 1 George Walter, center of 1-ac. tract and 396 ft. from W line of lease, Mary Van Winkle Sur.—Location.
Travis and Wair's No. 1 A. B. Loughridge, 330 ft. from S line, 590 ft. from E line of 30-ac. lease, Thomas Johnson Sur.—S.D. 700 ft.
Valentine Oil Co.'s No. 1 Coyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur.—Rigging up.

HENDERSON COUNTY

J. M. Roger's No. 1 M. N. Gussett, 150 ft. from N line, 1,000 ft. from W line of 103.5-ac. tract, L. D. Stover Sur.—Spudded and shut down.
South American Drlg. Co.'s No. 1 D. R. Broone, 330 ft. from N and W lines of SE 40 acres of 425-ac. tract, Thomas Parmer Sur.—Set 12-in. csg. 190 ft.

HILL COUNTY

Sherman-Houseman's No. 1 J. F. Griffith, in Samuel Waddell Sur.—Drlg. 3,207 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 230 ft. from N and W lines of 80-ac. tract in the John Polk Sur.—S.D. 540 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-ac. tract in John Shears Sur.—T.D. 2,364 ft.

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ..... S.D. 1,692 ft.
C. T. McManus' No. 1 Harron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ..... Spudded and S.D. 37 ft

HUNT COUNTY

Branson et al's No. 1 Gray ..... Location.
Russell et al's No. 1 Brooks and Quattlebaum ..... S.D. 1,455 ft.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignalius Aud Sur. ..... S.D. 4,036 ft.
Kenner Oil & Gas Co.'s No. 1 McGustion, 450 ft. from S line, 450 ft. from W line of farm and survey, Galet Wood Sur. ..... Set 10-in. csg. 150 ft.
Optometrist Oil Club's No. 1 J. M. McFadden, 450 ft. from S and W lines of McFadden E 25-ac. tract, J. Deck Sur. ..... T.D. 1,723 ft.
Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ..... Rigging up.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ..... S.D. 1,931 ft.
Sun Oil Co.'s No. 2 Grayson ..... Coring 5,590 ft.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 348 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ..... Derrick.

NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ..... S.D. 1,605 ft.
Churchill-Armstrong's No. 1 Max W. Hart, 2,040 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ..... Derrick.
G. A. Teague's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road in 73.5-ac. tract, Hossea Y. Barbo Sur. ..... Derrick.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ..... S.D. 3,430 ft.
Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ..... S.D. 3,920 ft.
Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ..... Drlg. 3,231 ft.
Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Horrera Sur. ..... S.D. 265 ft.
Creighton Drlg. Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ..... S.D. 3,226 ft.

POLK COUNTY

Humble Oil & Ref. Co.'s No. 1-A Onolaska Live Stock, 1,700 ft. NW along property line from most northerly E cor. of survey and 75 ft. SW at right angles, Wm. B. Hardin Sur. ..... Drlg. 679 ft.

RAINS COUNTY

C. H. Bayliss' No. 1 Ownby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ..... Coring Austin chalk 3,600 ft.

RED RIVER COUNTY

Doyle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. ..... Slush pit.
Droppleman and Bundy's No. 1 J. W. Cunningham, 250 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. ..... Rig up.
Gibbs et al's No. 1 Mace (old well being drilled deeper), 1,200 varas from S line, 1,500 varas from E line of survey, Wm. Cullam Sur. ..... T.D. 3,538 ft.
Henson and Hudson's No. 1 H. H. Lennos, 2,790 ft. W and 300 ft. S of most easterly NE cor. of survey, J. E. Edmondson Sur. ..... Spudded and shut down.
Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ..... S.D. 1,940 ft.
Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ..... T.D. 1,984 ft.
L. G. Priest's No. 1 J. M. Stiles, 900 varas S and 500 varas E most northerly NE cor. of Jones Bankston Sur. in the Levi Dean Sur. ..... S.D. 1,042 ft.

ROCKWALL COUNTY

Bucanner Oil Co.'s No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ..... Set 10-in. csg. 130 ft

RUSK COUNTY

A. J. Brown's No. 1 Strong, J. Hallam Sur. ..... S.D. 860 ft.
Byrd-Frost's No. 1 Buckner, J. E. Peyton Sur. ..... S.D. 2,840 ft.
Chapman's No. 1 W. M. Futch, 330 ft. from N line and 500 ft. from E line of survey and lease, Jos English Sur. ..... Waiting on cmt. to set 3,630 ft.
F. C. Clark's No. 1 A. Johnson, center of 3-ac. lease, E. A. J. Evans Sur. ..... Rigging up.
Hathaway et al's No. 1 Gray, J. M. McLain Sur. ..... Drlg. 2,685 ft.
H. E. Hiden's No. 1 Varney, 100 ft. from N line, 125 ft. from E line of road, W. G. Tutt Sur. ..... Derrick.
Howell's No. 1 Irion and Motley, 200 ft. from N line, 1,270 ft. from W line of survey, J. Lindley Sur. .. Derrick.
Humble Oil & Ref. Co.'s No. 1 Ben Peterson, 463 ft. from N line, 330 ft. from W line of N line and 330 ft. from W line of 50-ac. lease, J. Lewis Sur. ..... Sidetrack 2,734 ft.
Humble Oil & Ref. Co.'s No. 1 C. W. Wilson, 963 ft. from N line of Joe Williams tract, 400 ft. S, 156 ft. E of SW cor. of V. E. Reed tract, T. J. Martin Sur. ..... Drlg. 164 ft.
Humble Oil & Ref. Co.'s No. 1 J. T. Robertson, 380 ft. from S line, 330 ft. from W line of 15-ac. lease, Thomas Grace Sur. ..... Drlg. 2,480 ft.
H. L. Hunt's No. 2 R. J. Vinson, 990 ft. from N line, 330 ft. from W line of 55-ac. tract, Thos. H. Smith Sur. ..... Waiting on cmt. to set 3,640 ft.
A. W. Jones Oil Co.'s No. 1 J. M. Grant, 346 ft. from S line, 1,076 ft. from E line of 100-ac. tract, T. J. Walling Sur. ..... Drlg. 2,366 ft.
Louisiana Oil & Ref. Co.'s No. 1 Jernigan, 330 ft. from S line, 1,033 ft. from W line of 100-ac. lease, McCabe Sur. ..... Location.
Sadonovitch and Hoffman's No. 1 T. O. Mason, 300 ft. from S and W lines of 3.5-ac. tract, J. B. Cadena Sur. ..... Location.
Steadham and Thrasher's No. 1 Lillie Jones, 300 ft. from N line, 150 ft. from NE line of 50-ac. tract, F. Cordova Sur. ..... Drlg. 3,587 ft.
Ross Seward's No. 1 Burton, J. J. Y'Barbo Sur. ..... S.D. 3,077 ft.
Stanolind Oil & Gas Co.'s No. 1 T. O. Mason, 532 ft. W of SE cor. of tract and center of N and S lines of lease, J. B. DeCadena Sur. ..... Location.
Stanolind Oil & Gas Co. and Pure Oil Co.'s No. 1 R. A. Moores, 330 ft. from S line, 2,378 ft. from W line of 210-ac. tract, J. B. DeCadena Sur. ..... Location.
Stanolind and Pure Oil Co.'s No. 1 R. J. Burton, 330 ft. from S and W lines of 145-ac. tract, Thos. M. White Sur. ..... Location.
Sullivan and Burch's No. 1 E. B. Alford, 550 ft. W, 150 ft. S of NE cor. of 75.75-ac. tract, Isaac G. Parker Sur. ..... Rig up.
The Texas Co.'s No. 1 J. M. Price, located in the NW cor. of J. M. Price's 90-ac. lease, Thos. M. White Sur. ..... Derrick.
The Texas Co.'s No. 1 A. W. Kersh, located in the NE cor. of A. W. Kersh's 211-ac. tract, E. B. Fowlkes Sur. ..... Rigging up.
The Texas Co.'s No. 1 W. W. Henry, located in the NE cor. of W. W. Henry's 2,295-ac. lease, W. J. Roane Sur. ..... Location.
M. L. Thompson's No. 1 Price, Hugh Million Sur. ..... S.D. 3,280 ft.
Weaver and Crim's No. 1 Bean, 330 ft. from S line and midway between E and W lines of lease, H. Hobson Sur. ..... Waiting on cmt. to set 3,570 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ..... Derrick.
Duncan and Holt's No. 1 R. A. Motley, 150 ft. from N line, 2,700 ft. from W line of Motley 100-ac. tract, F. Cordova Sur. ..... Drlg. 3,795 ft.
Jackson et al's No. 1 P. C. Warren, 390 ft. from N line, 253 ft. from E line of 45-ac. tract, J. Womack Sur... Drlg. 3,790 ft.
Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ..... S.D. 3,350 ft.
Paulett et al's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... Bailed dry after small show of gas; T.D. 1,313 ft.
Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ..... Rig blew down.
Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ..... T.D. 3,680 ft.

SAN AUGUSTINE COUNTY

Smith and Baker's No. 1 Pickering Lumber Co., 6 miles N of San Augustine, E. Quick Sur. ..... Derrick.

SMITH COUNTY

Arcadia Ref. Co.'s No. 1 Wolford, center of 10-ac. tract, J. Jordan Sur. ..... Location.
Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 320-ac. tract, Calloway Dean Sur. ..... Derrick.
Cotton Belt Oil Co.'s No. C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ..... S.D. 4,038 ft.
Graham Bros.' No. 1 S. S. Cooke, 208 ft. from N and S lines and 506 ft. from E line of lease, Juan Vargus Sur. ..... Derrick.
J. R. Mecker et al's No. 1 Lewis Bacon, 990 ft. from N line, 906 ft. from W line, Wm. Sparks Sur. ..... S.D. 2,370 ft.
Tytex Oil Co.'s No. 1 Alex Weldert, 2,030 ft. from S line, 525 ft. from E line of Franklin T. Bodenheimer Sur. ..... Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ..... S.D. 2,875 ft.
Joiner et al's No. 1 Clayton Brown, 1,300 ft. from E and 400 ft. from most northerly S line of V. Evans Sur... S.D. 2,250 ft.
J. P. Flannagan's No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. ..... S.D. 7,193 ft.

UPSHUR COUNTY

Cranfill & Reynold's No. 1 Milton Rash, 1,687 ft. E of W line and 330 ft. N of S line of Rash estate, E. N. Eubanks Sur. ..... T.D. 3,729 ft.; set 6⅝-in. csg.
Danciger Oil & Ref. Co.'s No. 1 J. N. Taylor, center of E and W lines of lease and 330 ft. from S line, M. Mann Sur. ..... Waiting on cmt. to set 3,680 ft.
Cal-Pet Corp.'s No. 1 T. B. Stinchomb, 694 ft. S, 348 ft. W of SE cor. of 87.29-ac. tract, M. Mann Sur..... Drlg. 2,790 ft.
Galvez Oil Co.'s No. 1 Moore heirs, 330 ft. S, 990 ft. E of NW cor. of 50-ac. tract, D. Ferguson Sur. .... Rig up.
Hawkeye Pet. Co.'s No. 1 H. Fenton, 330 ft. from W line and center of N and S lines of 13.5-ac. tract, G. W. Hooper Sur. ..... Location.
Humble Oil & Ref. Co.'s No. 1 T. Jones, 187 ft. S, 297 ft. W of most easterly NE cor. of 126.44-ac. lease, Wm. King Sur. ..... Five degrees off at 3,522 ft.
Humble Oil & Ref. Co.'s No. 1 A. L. Shelton, 581 ft. from N line, 561 ft. from S line, 350 ft. from W line of 29.8-ac. lease, D. Ferguson Sur. ..... Three degrees off at 3,456 ft.
Humble Oil & Ref. Co.'s No. 1 D. C. Shelton, 273 ft. from E of W line, 150 ft. N of S line of 19.5-ac. lease, Wm. King Sur. ..... Testing 3,742 ft.
H. C. Hurley's No. 1 W. F. Smith, 330 ft. from E line and center of N and S lines of S 25 acres of W 50 acres of 100-ac. tract, J. Pineda Sur. ..... Rig up.
Magnolia Pet. Co.'s No. 1 H. Fenton, 330 ft. from S and W lines of 50-ac. tract, Wm. King Sur. ..... Waiting on cmt. to set 3,754 ft.
Murry Tool & Supply Co.'s No. 1 A. J. Sanders, 930 ft. from N line, 330 ft. from E line of 88.33-ac. tract, T. Allen Sur. ..... Rig up.
Pilot Oil Co. et al's No. 1 J. D. Ray et al, 1,050 ft. from N line, 950 ft. from S line, 990 ft. from W line of 218-ac. tract, A. H. Wood Sur. ..... S.D. 1,649 ft.
Shasta Oil Co.'s No. 1 E. E. Hall, 990 ft. from S line, 330 ft. from W line of 73.2-ac. tract, R. T. Gipson Sur. ..... S.D. 3,818 ft.
Shano Oil Co.'s No. 1 D. Rodden, 356 ft. from N and S lines, 544 ft. from W and E lines of W 40 acres of 80 acres of 100-ac. tract, Marshall Mann Sur. ... Drlg. 3,540 ft.
J. A. Wood's No. 1 A. J. Sanders, 271 ft. S, 330 ft. W of NE cor. of 45-ac. lease, T. Allen Sur. ..... Derrick.
Wolf's No. 1 Cook, center of 115-ac. tract in Jacob Walker Sur., 5 miles W of Rosewood ..... S.D. 1,100 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ..... S.D. 2,000 ft.
Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... S.D. 2,300 ft.
Thomasson, Inc.'s No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ..... Coring 3,195 ft.
Priest et al's No. 1 B. G. Beckham, 150 ft. from S line, 33 ft. from W line of 100-ac. tract, A. S. Johnsonson Sur. ..... Derrick.
Pure Oil Co.'s No. 4 L. M. Brawner, 955 ft. E of W line of base and 200 ft. S of N line of base, John Walling Sur. ..... Location.
Pure Oil Co.'s No. 3 B. E. Crim, 200 ft. E of W line, 250 ft. S of N line, John Walling Sur. ..... Drlg. 330 ft.
Pure Oil Co.'s No. 3 A. F. Magers, 250 ft. W of E line, 200 ft. N of S line of lease, Nacogdoches County School Land Sur. ..... Prepare to run csg. 2,799 ft.
Pure Oil Co.'s No. 2 Mrs. C. White, 250 ft. E of W line, 250 ft. S of N line, John Walling Sur. ..... Derrick.
Pure Oil Co.'s No. 3 A. W. Ellison, 200 ft. S of N line, 225 ft. W of E line of lease, James Rose Sur. ..... Prepare to run casing.
Pure Oil Co.'s No. 4 O. L. and L. L. Swain, 150 ft. S of N line, 303 ft. E of W line of lease, John Walling Sur. ..... Moving in tools.
Pure Oil Co.'s No. 1-T V. T. Davis, 400 ft. N of N line of Tunnell No. 8 lease, 480 ft. W of E line of Sur., Nacogdoches County School Land Sur. ..... Drlg. 5,205 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... Coring 2,850 ft.

WOOD COUNTY

Talko Oil Co.'s No. 1 G. T. Ross, B. L. Smith Sur. ..... S.D. 1,550 ft.
Wood County Dev. Co.'s No. 1 Davis, approximately 180 ft. from S line of 160-ac. tract and 2½ miles S of Kantes in Sarah McDonald Sur. ..... Derrick.

Manufacture of Natural Gasoline

MAGNOLIA IS OPERATING CLOSE TO ITS CAPACITY

Twenty natural gasoline plants are being operated by the Magnolia Petroleum Co. in Oklahoma, Texas, Louisiana and Arkansas. While some have curtailed operations, only two plants have been shut down completely, and the company is manufacturing close to 115,950 gallons of natural gasoline daily, the total capacity of the plants in operation. The plants shut down are the Healdton, SW NW NE Section 15-4-3w, Carter County, Oklahoma, and the Breckenridge, SE Section 13, L.A.L., Stephens County, Texas. The former has a capacity of 1,750 gallons and the latter of 6,250 gallons.

Following is a list of the Magnolia plants now operating:

Location—	Capacity (gals.)
NE SW Sec. 6-19n-6e, Payne Co., Okla.	4,500
NE Sec. 7-18n-7e, Creek Co., Okla....	9,500
SW Sec. 3-16n-7e, Creek Co., Okla. ..	8,250
SW Sec. 34-15n-5e, Lincoln Co., Okla.	3,750
NW NW SE Sec. 10-9n-5e, Seminole Co., Okla.	6,000
NW SW SE Sec. 15-7n-4e, Pottawatomie Co., Okla.	13,000
W 7.65-ac., Lot 4, Sec. 32-8n-8e, Seminole Co., Okla.	5,750
NW NW Sec. 19-1s-8w, Stephens Co., Okla.	600
SE SE SE Sec. 23-2s-3w, Carter Co., Okla.	5,000
J. G. Hardin farm, 1 mi. NNW Burkburnett, Wichita Co. Texas	4,250
Sec. 17, Blk. 13 H.&T.C. R.R. Co. Survey, Wilbarger Co., Texas	4,500
R. S. Harris farm, Matt Finch Survey, Eastland Co., Texas	9,000
Caruth farm, Smelzer Survey, Eastland Co., Texas	7,500
Sec. 12-12-11, Red River Parish, La...	1,500
Sec. 24-21n-15w, Caddo Parish, La...	1,300
Sec. 8-15-16, Union Co., Ark.	6,800
NE Sec. 82, Blk. 3, I.&G.N. R.R. Survey, Gray Co., Texas	4,250
Sec. 30, Blk. B-2, H.&G.N. R.R. Survey, Gray Co., Texas	15,000
Sec. 91, Blk. 4, I.&G.N. R.R. Survey, Carson Co., Texas	3,500
NE Sec. 39, Blk. 24, H.&G.N. Survey, Wheeler Co., Texas	2,000
Total	115,950

ALL GYPSY PLANTS WITH ONE EXCEPTION RUNNING

The Gypsy Oil Co. has 10 natural gasoline plants, all in Oklahoma, and of these all are in operation except the Davenport plant, NW, Section 11-14n-5e, Lincoln County, which has a capacity of 3,500 gallons daily. The Gypsy plants now running, with a daily capacity of 83,800 gallons, are the following:

Location—	Capacity gallons
N½ SW, Sec. 16-17-12, Creek County	19,200
E½ NE, Sec. 5-17-7, Creek County..	4,700
NE SW, Sec. 10-16-7, Creek County..	2,800
SE, Sec. 1-21-7, Osage County.....	3,100
NW, Sec. 24-27-5e, Osage County....	15,800
NW, Sec. 2-24-1w, Noble County....	5,200
SE NE, Sec. 3-14n-8e, Creek County	2,200
SE, Sec. 14-7n-6e, Seminole County	18,400
SE NW, Sec. 7-8-6, Seminole County	12,400
Total	83,800

NEW MARKETER IN LINCOLN

LINCOLN, Neb., Dec. 14.—An agreement has been reached under which the properties of the A. B. A. Independent Oil Co. are being taken over by the Champlin Refining Co. instead of being sold to satisfy a judgment for $85,670 obtained by the refining company. The federal court had ordered the sale, but O. A. Barber, manager of the A. B. A. properties, obtained a stay until March 1, following which the agreement was arrived at with the approval of the court. The A. B. A. company will be credited with $40,000 on the judgment through turning over its real estate and equipment to Champlin. The deficiency judgment of $44,760 will be taken care of through an amortization arrangement approved by the court and extending over four or five years.

TECHNOLOGISTS DISCUSS VARIOUS PHASES OF VAPOR-LOCK PROBLEM

By A. E. Becker
Standard Oil Development Co.*

Of the four factors mentioned by the authors as affecting vapor lock, namely, vapor pressure of gasoline, design of fuel-feed system, atmospheric temperature and altitude, only the first two factors are subject to control. The refiner is responsible for maintaining the vapor pressure of his gasoline at a figure which will give reasonable freedom from vapor-lock difficulties in cars on the road under all operating conditions encountered in both summer and winter, either at sea level or in the mountains. Unfortunately,

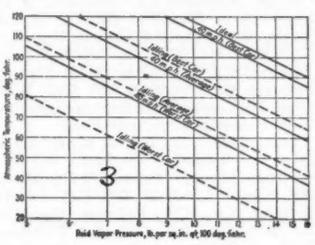


Figure 1—Relation between permissible Reid vapor pressure and atmospheric temperature.

he has no control over the design factor and must rely upon the automotive design engineer "to keep heat out of the fuel system."

With the development of cracking processes the quality of gasolines, particularly as regards volatility and antiknock quality, was considerably improved. Full utilization of these good qualities requires that cars be designed so that the increased volatility will not cause vapor-lock difficulties. Careful study of the present paper and the work that has preceded it will show that the desired improvement can be obtained by fairly simple design changes.

The authors' conclusion that the Reid vapor pressure (the 10 per cent evaporated point on the A.S.T.M. distillation curve is equally significant) determines essentially the maximum permissible fuel temperature in the feed system without encountering vapor lock agrees with the conclusions drawn as a result of similar work in the Standard Oil Development Co.'s laboratories. Obviously, the maxima temperatures existing in the fuel-feed systems of the worst vapor-locking cars on the road under the atmospheric temperatures and altitudes at which they are operated determine the permissible volatility of the refiner's gasolines. Otherwise he would be compelled to market additional gasolines, with a consequent increase of facilities for storage, transportation and marketing. Such a solution would be undesirable to the refiner, nor would the necessity of having the customer ask for gasoline specially produced to prevent vapor lock in his cars be pleasing to the motor car manufacturer.

The limitations imposed on the refiner at present are made clearly evident by comparing the temperature data for Car 10 with those for Car 34 or by comparing the idling line for the best car with that for the worst car in Figure 1. It will be seen that a Reid vapor pressure of about 4 or 5 pounds per square inch at 100° F. would be required to give satisfactory operation in the worst car tested when operating at sea level on a warm summer day with the thermometer at 90° F. On the other hand, the best car tested would be free from vapor-lock trouble under the same operating conditions with a gasoline having a Reid vapor pressure of 10 pounds per square inch. Even in the latter case the permissible vapor pressure probably could be raised to 13 or 14 pounds by a few simple changes in design, as pointed out by the authors.

However, the refiner has no choice; he is obliged to market a gasoline of very low volatility to give reasonably good service in Car 34. This unnecessarily penalizes Car 10, since a more volatile fuel would assure easier starting during the spring and autumn months, would result in smoother acceleration and performance, and in general would be of better antiknock quality. This is particularly regrettable since the authors found that such a simple expedient as transferring the fuel line between the rear tank and the pump to the outside of the frame channel was sufficient to very considerably reduce the heat accumulation in the fuel-feed system in the two cars so altered.

The design engineer is interested in keeping the fuel-feed lines where there is least danger of breaking them by a collision. He probably will find that the decreased temperatures obtained by moving the fuel lines to the outside of the frame channel can be largely accomplished by merely moving the fuel line to the inside of the other frame channel; that is, as far from the exhaust pipes and muffler as possible. Clearly, the automotive engineer should act to keep heat out of the fuel system. Meanwhile, refiners must set the 10 per cent points of their gasolines high enough or the Reid vapor pressures low enough to assure good operation in the great majority of cars now on the road.

SUMMARY OF TEMPERATURE DATA AT POINT WHERE VAPOR LOCK OCCURS
A, F. Above atmospheric temperature, °F.

Car	Fuel System	Atmospheric Temp. °F.	Constant speed, M.P.H. 20	40	60	Idling, M.P.H. 20	40	60
1	MP*	80	39	35	37	47	43	52
2	MP	70	28	30	30	54	66	65
3	MP	85	43	45	52	43	49	61
4	MP	80	25	25	29	36	41	52
5	MP	75	30	28	34	45	53	64
6	Vac.	70	32	32	36	48	52	70
7	Vac.	75	38	41	42	49	62	71
8	MP	80	34	34	35	49	56	63
9	MP	95	38	40	..	45	55	..
10	MP	75	4	4	10	25	27	47
11	MP	85	25	28	35	32	39	45
12	MP	90	38	38	..	44	54	..
13	MP	85	45	40	43	54	60	63
14	Grav.	85	29	26	..	32	45	..
15	MP	85	25	29	29	43	52	64
16	Vac.	90	44	43	..	60	68	..
17	MP	90	42	43	..	47	60	..
18	MP	95	30	32	..	40	51	..
19	MP	90	20	18	..	25	34	..
20	MP	85	24	26	..	30	37	..
21	MP	85	37	37	..	40	54	..
22	MP	85	43	44	..	61	71	..
23	MP	90	28	26	..	33	41	..
24	MP	90	27	27	..	30	37	..
25	MP	70	27	26	..	43	46	..
26	MP	80	24	27	..	35	40	..
27	MP	85	38	38	..	66	72	..
28	MP	80	27	26	..	35	44	..
29	MP	85	30	27	..	30	32	..
30	MP	80	38	37	..	41	45	..
31	MP	75	29	29	..	48	66	..
32	MP	80	28	29	..	51	59	..
33	MP	70	24	24	..	48	58	..
34	Grav.	75	44	54	..	61	80	..
35	MP	80	35	36	..	52	56	..
36	MP	75	32	29	..	32	35	..
37	MP	80	39	39	..	47	54	..
38	MP	75	31	32	..	49	57	..
39	Vac.	80	31	25	..	40	39	..
40	MP	90	33	33	..	37	49	..
41	MP	85	38	35	..	54	60	..
42	Vac.	70	24	24	..	27	34	..
43	MP	80	35	39	..	35	41	..
44	MP	80	29	34	..	37	48	..
45	MP	90	35	38	..	42	47	..
46	MP	85	29	27	..	29	28	..
47	MP	90	41	39	..	46	50	..
	AVERAGE		33	32	34	43	50	60

*MP—Fuel-pump.

By J. Bennett Hill
Atlantic Refining Co.*

Doctor Bridgeman's paper has pointed out very plainly that avoidance of vapor lock is a problem of automobile design. I recall the surprise of a few of our leading automotive engineers a year ago when it was stated to them that the gasoline refiner was ready and anxious to produce an easier-starting gasoline but was stopped from doing so by the vapor-locking delinquencies of some of our cars on the road. That, however, is exactly the situation, but it goes even further than that.

Doctor Bridgeman has shown that the quality of gasoline which makes for easy starting, namely, the 10 per cent point or the Reid vapor pressure, also makes for vapor lock. The data he has presented show that it is impossible to produce a gasoline which, during the spring and autumn, will start a car satisfactorily in the cool of the morning and operate it in the heat of the day without vapor lock, if the car is one of the vapor-lock offenders. A few figures will clearly illustrate this

The "worst-car" idling curve of Fig-

(Continued on Page 99)

*The accompanying discussions by Messrs. Becker and Hill were given at the semi-annual meeting of the Society of Automotive Engineers and are reprinted from the December issue of the society's journal. The discussions followed the presentation of a paper by Oscar C. Bridgeman and Horace S. White on "Fuel Line Temperatures in Cars of 1931." A paper incorporating the same data was presented at the annual meeting of the American Petroleum Institute and was published complete in the November 19, 1931 (page 22) issue of The Oil and Gas Journal. The discussion is published here due to the wide interest of the natural gasoline industry in all phases of the vapor lock problem.

EAST TEXAS PLANT

FORT WORTH, Tex., Dec. 12.—E. L. Chapman of this city has announced that a gasoline plant may be constructed on one of his leases near Overton soon after the first of the year, depending upon conditions in the industry and the district, and the obtaining of sufficient connections to serve such a plant.

Brief Items for Petroleum Refiners

GULF NOW PURCHASER IN WICHITA FALLS AREA

FORT WORTH, Tex., Dec. 14.—The Stanolind Crude Oil Purchasing Co. has withdrawn as a purchaser in the Wichita Falls district, all of its connections being turned to the Illinois Pipe Line Co. with the exception of four connections in the Strawn area which were turned to the Thurber Pipe Line Co. and Texas Pacific Coal & Oil Co.

The Gulf Pipe Line Co. is taking over around 2,500 bbls. of crude in the Wichita Falls district, which marks the reentry of the company as a purchaser in the district. Burkburnett and Beaver Creek Pool connections were turned by the Texas Pipe Line Co. to the Gulf, and around 1,100 bbls. from the Chalk Hill Pool in Archer County is to be taken. Gathering lines of the Texas Pipe Line Co. are to be used by the Gulf for gathering and running this oil.

The Stanolind Pipe Line Co. is to take around 1,000 bbls. per day from The Texas Company, these connections being located in the south Vernon Pool of Wilbarger County. Stanolind will also use gathering lines of the Texas Pipe Line Co. in transporting this crude.

This change in the policy of the Gulf Production & Pipe Line Co. may have great significance, the company heretofore purchasing no oil in this or the Panhandle area, running only its own oil. The move is of great benefit to the Wichita Falls district, removing the spectre of distress oil which has hovered on the horizon for the past 18 months, causing the price of crude to be lowered intermittently in the district. Swapping of these connections may have come at a most opportune time to prevent a cut in crude prices, which was threatened this week when the Primrose Refining Co. announced that as of December 15, it would post the following crude oil prices for oil in the North Texas (Wichita Falls) district:

Below 29	$0.41
29 to 29.9	0.42
30 to 30.9	0.45
31 to 31.9	0.47
32 to 32.9	0.49
33 to 33.9	0.51
34 to 34.9	0.53
35 to 35.9	0.55
36 to 36.9	0.57
37 to 37.9	0.59
38 to 38.9	0.61
39 to 39.9	0.63
40 and up	0.65

The Primrose Refining Co. has been connected to around 2,000 bbls. per day, but many connections have already been withdrawn and given to the Gulf Pipe Line Co. Other distress oil is expected to be taken by other major purchasers, which will forestall a cut in crude prices in the district.

There are 15 refineries operating in the district, but few of them running to capacity, the low market for gasoline, and weak demand causing a slump in refinery operations in the district. As these plants curtail crude takes, they leave unconnected oil which has to be absorbed by some other company to prevent distress oil.

P. & R. TO GET OIL

The Producers & Refiners Corp. was awarded the contract by the Federal Government for the purchase of royalty oil in the Salt Creek, Wyo., Field for running in the company's plant at Parco, Wyo. The company received the award because of its offer to pay 22¼ cents above the average of the posted field prices for crudes produced in Kansas, Oklahoma and Wyoming.

For the calendar year, 1930, the total government royalty oil from the Salt Creek Field amounted to approximately 1,325,000 bbls. and for the period from January 1 to July 31, 1931, approximately 666,000 bbls.

ETHYL GASOLINE SALES, 12½ PER CENT OF TOTAL FOR 1931

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Dec. 12.—The trend toward high compression in automobile power plants is illustrated by the substantial increases in gallonage achieved by the Ethyl Gasoline Corp., the leader in the move for high antiknock gasolines in the petroleum field. Preliminary estimates indicate that gallonage of Ethyl Gasoline marketed in the United States for 1931 will comprise 12½ per cent of the total of all gasoline sales in the country this year. A comparison of sales of Ethyl Gasoline from 1927, the first full year in which the Ethyl Gasoline Corp. operated, to the present time, follows:

Year—	Sales of "Ethyl" Gasoline (gallons)	Percentage of total U. S. sales
1927	255,000,000	3
1928	527,000,000	5
1929	1,241,000,000	9
1930	1,854,000,000	11½
1931	*2,200,000,000	*12½

*Estimated.

Estimated sales totals for 1931 indicate the growing tendency on the part of motorists to use premium fuels, the percentage increase in sales of Ethyl Gasoline this year exceeding the estimated gain in consumption of all gasolines for the year.

Intensive development of premium fuels by Ethyl Gasoline Corp. has played an important part in developments in both the automotive and petroleum industries in recent years. Ethyl fluid first made its appearance in 1923, as a product of the General Motors Research Laboratories, although development of the product on a national scale as a definite adjunct to the petroleum industry was not secured until the latter part of 1926.

As early as 1923, however, Ethyl Gasoline began to attain importance as a factor in retail gasoline sales. Fleet-Wing Oil Corp., Refiners Oil Co., and Standard Oil Co. of Indiana were the first users of Ethyl fluid, all three companies having Ethyl Gasolines on the market during 1923. The following year saw three additional major companies swing over to the antiknock banner, Standard Oil Co. of Kentucky, Standard Oil Co. of Louisiana, and Standard Oil Co. of New Jersey introducing an Ethyl Gasoline on the market.

Rapid Growth

The year 1926 witnessed the first substantial growth of the Ethyl "sphere of influence" in the petroleum industry, with Associated Oil Co. of California, Atlantic Refining Co., Colonial Beacon Oil Co., Continental Oil Co., Humble Oil & Refining Co., Imperial Oil, Ltd., Pennzoil Co., Standard Oil Co. of Cuba, Standard Oil Co. of Nebraska, Sterling Oil Co., Union Oil Co. of California and Waverly Oil Works Oil Co. all adopting Ethyl as their premium grades.

The following year witnessed further recruits, the 1927 additions to the Ethyl list including American Oil Co., Anglo-American Oil Co., Ltd., Ashland Refining Co., Johnson Oil Refining Co., Louisiana Oil Refining Corp., A. D. Miller Sons Co., Richfield Oil Corp. of New York, Root Refining Co., Standard Oil Co. of Ohio and Texas Pacific Coal & Oil Co.

With most of the Standard Oil units featuring Ethyl, the independent companies were not slow in following suit. In 1928 Crystal Oil Refining Corp., Kendall Refining Co., Mexican Petroleum Corp., Pan American Petroleum Corp., Pennsylvania Refining Co., Solar Refining Co., Tidal Refining Co., and Tide Water Oil Co. all adopted Ethyl as their premium product.

Numerous other large oil companies followed suit in 1929, the new licensees during that year including British American Oil Co., Ltd. (Canada), Champlin Refining Co., Continental Refining Co., Deep Rock Oil Corp., Eason Oil Co., Freedom Oil Works Co., Independent Oil & Gas Co., Lincoln Oil Refining Co., Mid-Continent Petroleum Corp., Midwest Refining Co., National Refining Co., Ohio Oil Co., Pasotex Petroleum Co., Phillips Petroleum Co., Producers & Refiners Corp., Richfield Oil Co. of California, Shreveport-El Dorado Pipe Line Co., Standard Oil Co. of California, Standard Oil Co. of New York, Utah Oil Refining Co., Vacuum Oil Co., White Eagle Oil Corp., White Star Refining Co., Wirt Franklin Petroleum Corp.

During 1930 the list of Ethyl distributors was increased by Aetna Oil Service, Inc., Allegany-Arrow Oil Co., Barnsdall Corp., Canfield Oil Co., Col-Tex Refining Co., Elk Refining Co., Garber Refinery, Inc., General Petroleum Corp. of California, Glasgow Oil & Refining Co., Globe Oil & Refining Co., Hickok Oil Corp., Home Oil Distributors, Ltd., the Kanotex Refining Co., Latonia Refining Corp., Lion Oil Refining Co., Lubrite Refining Corp., Magnolia Petroleum Co., Oil Creek Refining Co., Pennsylvania Oil Products Refining Co., Pure Oil Co., Regal Petroleum Co., Ltd., Rio Grande Oil Co., Skelly Oil Co., Standard Oil Co. of Pennsylvania, Stoll Oil Refining Co., The Texas Company, Tri-State Refining Co., United Refining Co., Wadhams Oil Corp., H. F. Wilcox Oil & Gas Co. and Wolverine Empire Refining Co., Inc.

Seven large companies have added Ethyl to their premium gasolines this year, as follows: Gulf Refining Co., Indian Refining Co., Shell Petroleum Corp., Shell Co. of Canada, Ltd., Shell Eastern Petroleum Products, Inc., Sinclair Refining Co., Sinclair Cuba Oil Co., S.A., and McColl-Frontenac Oil Co., Ltd.

The only major group which thus far has adhered to its own premium fuel, in preference to an Ethyl blend, is the Cities Service group of companies.

POLLUTION OF OCEAN BY DUMPING OIL FORBIDDEN

WASHINGTON, D. C., Dec. 14.—The Supreme Court of the United States has issued a decree enjoining the City of New York on and after June 1, 1933, from dumping any kind of offensive refuse into the ocean or waters of the United States. This applies to refuse oil and other substances which long have been the subject of litigation, in order to avoid polluting bathing beaches of the New Jersey Coast.

The decree requires the City of New York to report to the court by April 1, 1932, what progress has been made in providing for incinerators to take care of such refuse.—C.E.K.

START SMALL REFINERY

The Troy Oil Refinery, located west of Troy, Spencer County, in southern Indiana, has successfully made its first run of gasoline to test its new refining plant. Spencer is thought to be the first county in the state outside of the big plant near Chicago to manufacture gasoline. The plant will produce gasoline, kerosene, fuel oil and engine oil. It has a capacity of 300 bbls. of crude oil a day.

MIDWEST BUYS OHIO CRUDE FOR REFINERY

The Midwest Refining Co. has contracted with the Ohio Oil Co. for 100,000 bbls. of crude from the Garland Dome in Big Horn County, Wyoming. The Ohio company will prorate the oil to be shipped among the several producing wells. The oil will be moved from the field through the Byron-Cowley Junction line to Cowley and shipped to the Midwest refinery at Greybull. The refinery recently installed a unit of Cross cracking stills with a charging capacity of 2,500 bbls. daily to handle black oil.

The Ohio Oil Co. brought in the discovery well in the Madison lime on the Garland Dome in 1930 in its No. 1 Easton, SE cor. Section 33-56-97, and while it was gauged for only an hour, it was generally agreed that it was good for at least 5,000 bbls. daily. The Portland Association, Inc., subsequently brought in an offset estimated at 1,000 bbls., and last fall the Utah Southern Oil Co. completed a 1,500-bbl. well. The Madison lime is the thickest saturated formation so far found in the Rocky Mountain states as drilled at Garland. In addition to the companies named, other owners of acreage are the Kinney-Coastal Oil Co. and the Producers & Refiners Corp., this group practically controlling the field.

REVISION OF OIL RATES IS ASKED BY RAIROADS

AUSTIN, Tex., Dec. 14.—An application for revision of freight rates on crude oil, fuel oil, road oil and fuel distillates has been submitted by carriers to the State Railroad Commission. The general basis sought is 80 per cent of the present rates on refined oils, recently adopted. The proposed basis would reach a maximum rate of 53 cents at 1,261 miles. The present maximum is 24 cents at 425 miles on crude, fuel and road oil with fuel distillates taking a 3-cent higher charge and reaching the maximum of 27 cents at 425 miles.

As proposed, there would be a reduction in crude, fuel and road oil rates for shorter distances and increases beyond. Fuel distillate rates would be reduced up to 180 miles single line and 320 miles joint line and beyond these distances the rates would be increased.

Practically all crude oil now is moving at special rates with a few on fuel oil distillates, none of which would be canceled under the application. Because of the few special rates on fuel oil and distillates and road oil, substantial increases would result as to them. The carriers gave assurance that if the necessity arises they will accord similar special rates to move the traffic.

REDUCTION OF RATES REFUSED

The Interstate Commerce Commission has refused the Pennsylvania Railroad and other carriers permission to reduce rates on gasoline, kerosene and furnace oil from Oil City, Franklin, Butler and other western Pennsylvania points to destinations in Pennsylvania, New York, Ohio and West Virginia. The carriers proposed to make reduced rates effective on one day's notice in order to meet truck competition and retrieve certain of this traffic which has left the rails.

A. M. McBIRNEY DIES

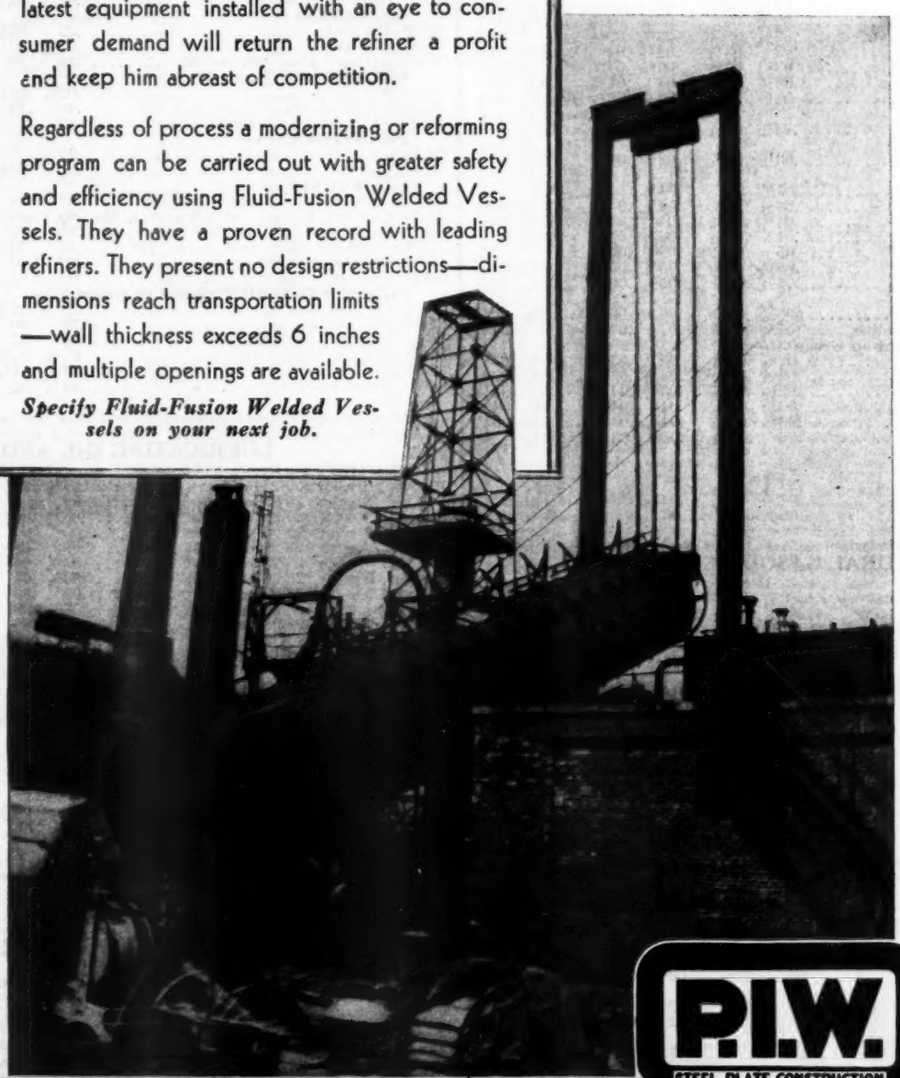
PHILADELPHIA, Pa., Dec. 12.—A. M. McBirney, sales manager for the Crew-Levick Oil Co., a Cities Service subsidiary, was found dead December 9 in his garage.

Modernize with FLUID-FUSION Welded Refinery Vessels

The refining pace is accelerating and only the latest equipment installed with an eye to consumer demand will return the refiner a profit and keep him abreast of competition.

Regardless of process a modernizing or reforming program can be carried out with greater safety and efficiency using Fluid-Fusion Welded Vessels. They have a proven record with leading refiners. They present no design restrictions—dimensions reach transportation limits—wall thickness exceeds 6 inches and multiple openings are available.

Specify Fluid-Fusion Welded Vessels on your next job.



P.I.W. STEEL PLATE CONSTRUCTION

The PETROLEUM IRON WORKS COMPANY
SHARON, PA.
NEW YORK TULSA

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Dec. 15		Dec. 8		Dec. 1	
50-52 450 endpoint	.02¾	.03	.03⅛	.03¼	.03¾	.04
56-58 450 endpoint	.02¾		.03	.03¼	.03⅝	.03⅞
58-60 U. S. Motor	.02¾	.03¼	.03½	.03⅝	.03¾	.04⅛
60-62 430 endpoint	.02⅞	.03¼	.03⅝	.03¾	.03⅞	.04¼
60-62 400 endpoint	.03	.03½	.03½	.04	.04	.04½
64-66 375 endpoint	.03¼	.03¾	.03¾	.04½	.04½	.05
68-70 360 endpoint	.03½	.04	.04	.04½	.04⅝	.05¼
64-66 437 endpoint (blend)	.02¾	.03	.03¼	.03½	.03¾	.04
NORTH TEXAS—						
50-52 450 endpoint	.02⅝	.02¾	.03		.03¾	
58-60 450 endpoint	.02½	.02¾	.03		.03½	.03⅞
58-60 U. S. Motor	.02⅝	.03	.03½	.03½	.03¾	.04
60-62 400 endpoint	.02¾	.03	.03⅝	.03½	.04	.04½
64-66 390 endpoint	.03	.03¼	.03½	.04	.04¼	.04½
64-66 375 endpoint	.03¼	.03½	.03⅝	.04	.04½	.04¾
68-70 360 endpoint	.03½	.04	.04	.04½	.04⅝	.05
64-66 437 endpoint (blend)	.02½	.02¾	.03⅛	.03¼	.03¾	.04
*NORTH LOUISIANA—						
58-60 U. S. Motor	.03½	.03¾	.03¾	.04	.04¼	.04½
*ARKANSAS—						
58-60 U. S. Motor	.03½	.03¾	.03¾	.04	.04¼	.04½
PENNSYLVANIA—						
52-54 Naphtha	.04½		.04½		.04½	
54-56 Naphtha	.04¼		.04¼	.04⅜	.04¼	.04⅜
58-60 Gasoline	.04½	.04⅝	.04½	.04¾	.04½	.04¾
60 Gasoline	.04⅝	.04¾	.04¾	.05	.04¾	.05
62 Gasoline	.05	.05¼	.05	.05¼	.05	.05¼
64 Gasoline	.05¼	.05⅜	.05¼	.05⅜	.05¼	.05⅜
68-70 350 endpoint gasoline	.05¾	.06	.05¾	.06	.05¾	.06
CALIFORNIA—						
†54-58 U. S. Motor (domestic)	.06¼	.07	.06	.06½	.05½	.06½
†58-60 400 endpoint domestic gasoline	.07	.07¾	.07	.07½	.06	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.02⅝	.02¾	.03	.03¼	.03⅜	.03½
58-60 U. S. Motor	.02¾	.03	.03¼	.03⅜	.03¾	.03⅞
60-62 400 endpoint	.03⅛	.03⅝	.03½	.04	.04	.04¼
64-66 375 endpoint	.03½	.04	.04	.04½	.04⅜	.04⅝
68-70 360 endpoint	.03⅞	.04½	.04¼	.04½	.04⅞	.05⅛
64-66 437 endpoint (blend)	.03	.03¼	.03¼	.03½	.03¾	
GULF COAST (Export)—						
58-60 U. S. Motor	.04¾		.04¾		.04½	
60-62 400 endpoint	.04⅞		.04⅞		.04⅝	
61-63 390 endpoint	.04⅞		.04⅞		.04⅝	
64-66 375 endpoint	.05		.05		.05	

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Dec. 15		Dec. 8		Dec. 1	
Grade A, 72-79.9, 375 e.p., rec. 90%	.02¾	.03	.02⅞		.03½	.03⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02⅝	.02½	.02⅝		.03¼	.03⅞
Grade B, 76-83.9, 375 e.p., rec. 85%	.02⅜		.02½		.03¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.02½	.02⅜	.02½		.03	.03¼
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.02½		.03	.03⅛
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.02⅝	.02¾	.02¾		.03⅜	.03½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02⅝	.02½	.02½		.03⅛	.03¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.02¼		.02⅜		.03⅛	
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅛	.02¼	.02⅜		.03	
Grade C, 80-92, 375 e.p., rec. 78%	.02⅛	.02¼	.02⅜		.03	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.02½		.02¾		.03¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅝		.02⅝		.03	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.02⅞		.03	
CALIFORNIA—						
75-78 375 endpoint	.05¾	.06½	.05¾	.06½	.05¾	.06½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.02⅝	.02¾	.02¾		.03½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02⅝	.02½	.02⅝		.03¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¼		.02½		.03	

BURNING OIL

OKLAHOMA (Group 3)—	Dec. 15		Dec. 8		Dec. 1	
41-43 water white kerosene	.02¼	.02⅝	.02⅛	.02¼	.02⅛	.02½
42-44 water white kerosene	.02⅝	.02⅝	.02¼	.02½	.02¼	.02½
NORTH TEXAS—						
41-43 water white kerosene	.02¼	.02⅝	.02⅛		.02⅛	
40-41 water white kerosene	.02⅛	.02¼	.02	.02⅛	.02	.02¼
*NORTH LOUISIANA—						
41-43 water white kerosene	.03		.03		.03	
*ARKANSAS—						
41-43 water white kerosene	.03		.03		.03	
PENNSYLVANIA—						
43 Kerosene prime white	.03⅞	.04	.03¾		.03¾	
45 Kerosene water white	.04¼	.04¼	.04		.03⅞	.04
46 Kerosene water white	.04¼	.04⅜	.04		.04	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04½	.05½	.04½	.05½	.04½	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼
42-44 water white kerosene	.02¼	.02⅜	.02¼	.02½	.02¼	.02½
GULF COAST (Export)—						
41-43 prime white	.04	.04¼	.04	.04¼	.04¼	.04½
44 prime white	.03¾	.04	.03¾	.04	.04	.04¼

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

OKLAHOMA (Group 3)—	Dec. 15		Dec. 8		Dec. 1	
Below 18 gravity Fuel Oil (per bbl.)	.22½	.27½	.22½	.27½	.22½	.27½
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
20-22 Fuel Oil, per bbl.	.27½	.35	.30	.35	.30	.35
22-26 Fuel Oil, per bbl.	.32½	.37½	.35	.40	.35	.40
24-26 Fuel Oil, per bbl.	.35	.40	.37½	.45	.37½	.45
26-30 Fuel Oil, per bbl.	.40	.45	.42½	.47½	.42½	.47½
28-30 Fuel Oil, per bbl.	.45	.50	.50	.55	.50	.55
32-36 Gas Oil (industrial)	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
32-36 Gas Oil (straw color, high cold test)	.01¼		.01¼	.01⅜	.01¼	.01⅜
32-36 Gas Oil (straw color, low cold test)	.01⅝	.01¾	.01⅝	.01¾	.01⅝	.01¾
36-38 Distillate	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
38-40 Straw Distillate	.01¾	.02	.01¾	.02	.01¾	.02

Note—Fuel oils over 40 cold test when available generally 5 to 10 cents per barrel less.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.35	.40	.40	.45	.40	.45
24-26 Fuel Oil, per bbl.	.40	.45	.45	.50	.45	.50
32-36 Gas Oil (industrial)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
38-40 Straw Distillate	.01⅝	.01¾	.01⅝	.01¾	.01⅝	.01¾
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.35	.50	.35	.50	.35	.50
30-32 Gas Oil (low cold test)	.02	.02¼	.02	.02⅛	.02	.02⅛
*ARKANSAS—						
33-36 Distillate	.02	.02¼	.02	.02¼	.02	.02¼
30-32 Gas Oil	.01¾	.02	.01¾	.02	.01¾	.02
16-22 Refinery Fuel Oil, per bbl.	.40	.50	.35	.50	.35	.50
GULF COAST (South Texas)—						
Gas Oil	.02¼	.02½	.02¼	.02½	.02¼	.02½
Bunker C Fuel (cargo lots), per bbl.	.40	.45	.40	.45	.40	.45
Bunker C Fuel (small lots)	.45		.45		.45	
PENNSYLVANIA—						
30-34 Gas Oil	.02½		.02½		.02½	
36-40 Gas Oil	.02½	.02¾	.02½	.02⅝	.02½	.02⅝
CALIFORNIA—						
‡42-45 480 endpoint engine distillate	.07	.08	.07	.08	.07	.08
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil, cargo lots (tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.80	1.00	.80	1.00	.80	.95
30-34 Gas Oil	.85	1.05	.85	1.05	.75	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.25	.32½	.25	.30	.27½	.32½
22-26 Fuel Oil, per bbl.	.35	.40	.35	.40	.35	.40
28-30 Fuel Oil, per bbl. (zero)	.50	.55	.52½	.57½	.52½	.57½
32-36 Gas Oil (industrial)	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝
32-36 Gas Oil (zero)	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
38-40 Straw Distillate	.01⅞	.02	.01⅞	.02	.01⅞	.02

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content. ‡For Pacific Coast consumption.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Dec. 15		Dec. 8		Dec. 1	
100 vis., 2 color, 20-25 cold test	.04¼	.04½	.04¼	.04½	.04½	.04¾
100 vis., 3 color, 20-25 cold test	.04		.04		.04	.04¼
150 vis., 3 color, 20-25 cold test	.06½	.06¾	.06½	.06¾	.06¾	.07
150 vis., 4 color, 20-25 cold test	.05¾	.06	.05¾	.06	.06¼	.06½
180 vis., 3 color, 23-28 cold test	.08	.08¼	.08	.08¼	.08¼	.08½
180 vis., 4 color, 23-28 cold test	.07½	.07¾	.07½	.07¾	.07¾	.08¼
180 vis., 5 color, 23-28 cold test	.06¾	.07	.06¾	.07	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09	.09½	.09	.09½	.09½	.10
200v is., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.09	.09½
200 vis., 5 color, 23-28 cold test	.07¾	.08	.07¾	.08	.08¼	.08½
240 vis., 3 color, 25-30 cold test	.10½	.10¾	.10½	.10¾	.11	.11¼
240 vis., 4 color, 25-30 cold test	.09¾	.10¼	.09¾	.10¼	.10¼	.10¾
240 vis., 5 color, 25-30 cold test	.09¼	.09½	.09¼	.09½	.09¾	.10
280 vis., 3 color, 25-30 cold test	.12	.12½	.12	.12½	.12½	.13
280 vis., 4 color, 25-30 cold test	.11	.11½	.11	.11½	.11½	.12
280 vis., 5 color, 25-30 cold test	.10¼	.10½	.10¼	.10½	.10¾	.11
Cylinder Stocks:						
600, steam refined, light green	.04	.06	.04	.06	.04	.06
600, steam refined, dark green	.03½	.05	.03½	.05	.03½	.05
190-200 vis., D color, Bright Stocks	.19	.20	.19	.20	.21	.22
150-160 vis., D color, Bright Stocks 0-10 c.t.	.17½	.18	.17½	.18	.19½	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.17	.17½	.17	.17½	.19½	
150-160 vis., D color, Bright Stocks 25-40 c.t.	.16½	.17	.16½	.17	.19	
150-160 vis., E color, Bright Stocks	.16½		.16½		.18½	.19
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01⅞

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.05¾	.05½	.06	.05½	.06
34 Sundebloom	.05	.05¼	.05	.05¼	.05	.05¼
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.16	.16¼	.16	.16¼	.16	.16¾
180, 3 color	.18	.19¼	.19	.19¼	.19	.19¾
200, 3 color	.20	.20¾	.20½	.21	.20½	.21
220, 3 color	.22½	.24	.24½	.25	.24½	.25
600, steam refined	.11¾	.12	.12	.12½	.12½	.12¾
650, steam refined	.15	.15½	.15½	.15¾	.15½	.15¾
600, Pennsylvania Flash	.16½	.18	.16½	.17	.16½	.17
600, E filtered	.16	.17½	.17	.17¼	.17	.17¼
600, D filtered, Oil City	.22		.22		.21	.22
Pennsylvania Bright Stocks below 35 c.t.	.21	.22	.22	.23	.22	.23
Pennsylvania Bright Stocks above 35 c.t.	.20	.21	.21	.22	.21	.22
*122-124 White Crude Scale Wax	.02⅛		.02⅛		.02⅛	
*124-126 White Crude Scale Wax	.02⅛		.02⅛		.02⅛	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10¼	.09⅞	.10⅜	.09⅞	.10⅜
750 vis., 3½ color, pale oil	.11⅜	.11⅞	.11⅜	.11⅞	.11⅜	.11⅞
1,200 vis., 3½ color, pale oil	.13⅞	.14⅜	.13⅞	.14⅜	.13⅞	.14⅜
2,000 vis., 4 color, pale oil	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅜	.07⅞	.08⅜	.07⅞	.08⅜
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝
1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
200 vis., 2½-3 color	.09¼	.10¼	.09¼	.10¼	.09¼	.10¼
300 vis., 3-3½ color	.10¼	.11¼	.10¼	.11¼	.10¼	.10¼
350 vis., 3½-4 color	.11¼	.12	.11¼	.12	.11¼	.12
450 vis., 3½-4 color	.12	.12¾	.12	.12¾	.12	.12¾

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

550 vis., 3½-4 color	.12¾	.13¾	.12¾	.13¾	.12¾	.13¾
Red Neutral:						
200 vis., 4½-5 color	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
300 vis., 5-6 color	.10½	.11	.10½	.11	.10½	.11
500 vis., 4½-5 color	.12¾	.13½	.12¾	.13½	.12¾	.13½
600 vis., 6½ plus color	.13½	.14¼	.13½	.14¼	.13½	.14¼
700 vis., 6½ plus color	.14½	.15¼	.14½	.15¼	.14½	.15¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Dec. 15	Dec. 8	Dec. 1
Gaso., U.S.M., 58-60, 437 e.p., 65 O.N. (min.)	.07	.07	.06¼ .06½
Gaso., U.S.M., 58-60 437 e.p., below 65 O.N.	.06½	.06½	.05¾ .06
Kerosene, water white, 41-43	.06	.06	.05½
*Fuel Oil, Bunker "C"	.60	.60	.60
†Fuel Oil, Diesel, 28-30, per bbl.	1.20	1.30	1.30
Gas Oil, 28 gravity plus	.03¾ .04	.04	.04
25 pale Paraffin Oil, tank car	.10¼	.10¼	.10¼
28 pale Paraffin Oil, tank car	.07¼	.07¼	.07¼
280 red Paraffin Oil, tank car	.12½	.12½	.12½
250 red Paraffin Oil, tank car	.11½	.11½	.11½
225 red Paraffin Oil, tank car	.10	.10	.10
200 red Paraffin Oil, tank car	.09¼	.09¼	.09¼
Domestic heat, oil, min. 32 grav., tank car	.03½	.03½	.03½
Refined Wax:			
120-122 a.m.p., per lb.	.02¾	.02⅞	.02⅞
125-127 a.m.p., per lb.	.02⅞	.03	.03
130-132 a.m.p., per lb.	.03⅛	.03½	.03½
133-135 a.m.p., per lb.	.03⅞ .04	.04	.04
135-137 a.m.p., per lb.	.04¼	.04½	.04½
Petrolatum in barrels in carload lots, per pound:			
Dark green	.01¾	.01¾	.01¾
Amber	.02½	.02½	.02½
Extra amber	.03	.03	.03
Cream	.05½	.05½	.05½
Lily white	.06½	.06½	.06½
Snow white	.07	.07	.07

*Lighterage 5 cents a barrel extra. Price of 60 cents was established for Bunker "C" fuel oil on October 16 and has not been changed since that date. Prices of 70 cents carried in later issues were incorrect. †Lighterage 6.5 cents a barrel. Price of $1.30 for Diesel oil was established on October 16 and has not been changed since that date. Prices of $1.50 carried in later issues were incorrect.

NEW YORK (BAYONNE) REFINERY PRICES

	Dec. 15	Dec. 8	Dec. 1
600, steam refined cylinder stocks, in bbls.	.21 .22	.21 .22	.21 .22
635, steam refined	.22½ .23	.22½ .23	.22½ .23
650, steam refined	.24 .24½	.24 .24½	.24 .24½
600, Pennsylvania Flash	.25 .26	.25 .26	.25 .26
630, Pennsylvania Flash	.28 .29	.28 .29	.28 .20
600, Warren E	.24 .24½	.24 .24½	.24 .24½
600, Oil City E	.23 .23½	.23 .23½	.23 .23½
Light 140-150 Bright Stocks	.30 .31	.30 .31	.30 .31
Dark 140-150 Bright Stocks	.29 .30	.20 .30	.29 .30

LOS ANGELES EXPORT PRICES

	Dec. 15	Dec. 8	Dec. 1
Kerosene, water white	.04 .04¾	.04 .04¾	.04 .04¾
U. S. Motor gasoline, 53-55, 437 e.p.	.04¼ .04½	.04¼ .04½	.04¼ .04½
58-60, 400 endpoint gasoline	.04¾ .05	.04¾ .05	.04¾ .05

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (Nov. 2, 1931)†.....$ .83
Corsicana heavy (Nov. 2, 1931)*..... .49
Other fields.....See gravity table

†Posted by Panola Pipe Line Co., Magnolia Petroleum Co., Tidal Refining Co., Sinclair Refining Co., Gulf Pipe Line Co., Atlas Pipe Line Co. *Magnolia Petroleum Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective November 1, 1931)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) (Oct. 15, 1931).....$2.00
Pennsylvania Grade Oil in Southwest Pennsylvania Lines..... 1.70
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)..... 1.60
Penna Grade Oil in Buckeye Pipe Line Lines (Dec. 1, 1931)..... 1.40
Corning Grade Oil in Buckeye Pipe Line Co.'s line (Nov. 9, 1931)..... .85
Bagland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931)..... 1.17

Tide Water Pipe Co.
(Effective November 1, 1931)

Bradford, Pa.....$2.00
Allegany, N. Y..... 2.00

Pure Oil Co.
(Effective September 12, 1931)

Cabin Creek, W. Va.....$1.60
Bradford Hollow, W. Va..... 1.60
Kelly's Creek, W. Va..... 1.60

Pennzoil Co.
(Effective October 8, 1931)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.95
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B $1.94
Includes Titusville district.
Group C $1.93
Includes Turkey and Tidiout districts.
Group D $1.92
Includes Bear Creek and Porkey districts.
Group E $1.90
Includes Eidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emienton, Tiona, Lacy and Kinsua districts.
Price depends on length of pipe line haul to plant at Oil City.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties....See gravity table

WEST TEXAS

Iatan and Westbrook..Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties*.....$ .50
Lea County, N. Mex.‡..... .50
Toboro, Pecos County, Aug. 25, 1931†. .25
*The Texas Company, November 2, 1931; Magnolia Petroleum Co., Humble Oil & Refining Co., Gulf Pipe Line Co., same day. †Shell Petroleum Corp. ‡Humble Oil & Refining Co., The Texas Company, November 2, 1931.

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers.....
.....See gravity table
Jennings, La. (Nov. 2, 1931)*.....$ .65
Lockport, La. (Aug. 27, 1931)†.....
.....See Gulf Coast gravity table
Refugio light.....See gravity table
Refugio heavy (Nov. 2, 1931)‡..... .75
Markham (Nov. 2, 1931)‖..... .67
High Island (Nov. 2, 1931)¶..... .65
*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. ‖Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) (Nov. 4, 1931) .....$ .55
Urbana, Ark. .....See note below
Bellevue, La. (June 3, 1931)..... .25
Urania, La. (Nov. 2, 1931)..... .50
Calion, Ark. (Aug. 22, 1931)..... .52
East El Dorado, Ark. (Nov. 4, 1931)... .55

(Continued on Page 90)

CRUDE OIL GRAVITY TABLE

Gravity	1 Kansas and Oklahoma	2 North and Central Texas	3 East Central Texas	4 Gray County, Texas	5 Carson and Hutchinson Counties Texas	6 Salt Creek, Wyo.	7 North Louisiana and Arkansas	8 Gulf Coast (Tex. and La.)
Below 25 degrees	...	...	...	...	...	...	...	$ .70
25-25.9 degrees	...	...	...	...	...	...	...	.71
26-26.9 degrees	...	...	...	...	...	...	...	.72
27-27.9 degrees	...	...	...	...	...	...	...	.73
28-28.9 degrees	...	...	...	...	...	...	...	.74
Below 29 degrees	$ .61	$ .61	$ .61	...	...	$ .61	$ .61	...
29-29.9 degrees	.63	.63	.63	...	...	.63	.63	.75
30-30.9 degrees	.65	.65	.65	...	...	.65	.65	.76
31-31.9 degrees	.67	.67	.67	...	...	.67	.67	.77
32-32.9 degrees	.69	.69	.69	...	...	.69	.69	.78
33-33.9 degrees	.71	.71	.71	...	...	.71	.71	.79
34-34.9 degrees	.73	.73	.73	$ .61	$ .56	.73	.73	.80
35-35.9 degrees	.75	.75	.75	.63	.58	.75	.75	.81
36-36.9 degrees	.77	.77	.77	.65	.60	.77	.77	.82
37-37.9 degrees	.79	.79	.79	.67	.62	.79	.79	.83
38-38.9 degrees	.81	.81	.81	.69	.64	.79	.79	.84
39-39.9 degrees	.83	.83	.83	.71	.66	.79	.79	.85
40 degrees and over	.85	.85	.85	.73	.68	.79	.79	.86

The Magnolia Petroleum Co., which pays a flat price in every field in which it purchases oil, posted the following price notice: "Effective November 2, 1931, at 7 a. m. and until further notice our prices on crude oil will be as follows at the wells: North and North Central Texas, which includes only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 33 cents; Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County and Lytton Springs, 79 cents; East Texas district, 83 cents; West Texas, which includes Winkler, Crane, Upton, Howard, Glasscock and Mitchell Counties, 50 cents; Panhandle district of Texas; Gray County, 73 cents; Carson and Hutchinson Counties, 66 cents; Southwest Texas: Mirando, 75 cents; Darst Creek, 60 cents; Corsicana heavy and Luling, 49 cents. Oklahoma: Cushing, Yale, Oklahoma City, Morrison, Wewoka, Seminole, 83 cents; Cement, Duncan and Walters, 75 cents; Hewitt and Graham, 67 cents; Healdton, 52 cents."

The Magnolia Petroleum Co. made the following announcement applying to North Louisiana and Arkansas: "Effective November 4, 1931, at 7 a. m., and until further notice our prices on crude oil in the States of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana—Bull Bayou, 83 cents; Haynesville, 65 cents; Pine Island, 73 cents; Cotton Valley, 61 cents. Arkansas—El Dorado, 63 cents; Rainbow, 63 cents; El Dorado East Field, 55 cents; Smackover, 55 cents."

The White Eagle Oil Corp., effective November 2, posted the following prices in Kansas: Group 1—Eastborough, Wright, Robbins, Greenwich, Lorena and North Greenwood Pools, 85 cents; Group 2—Eastman, Fox-Bush and Keighly, 83 cents; Group 3—Smock, Sluss, Leon-Weaver, Peabody and Rock, 81 cents; Group 3A—Ritz-Canton, 79 cents; Group 4—Urschell, Florence, Elbing, Nuttle-Koogler, 77 cents; Augusta, 77 cents; Group 5—Gelwick, 61 cents.

Column 1—Led by Continental Oil Co., effective November 2, and adopted by other purchasers on same day, excepting that the Carter Oil Co., Gypsy Oil Co. and Pure Oil Co. started their schedule at below 25 degrees, 53 cents; 25 degrees, 55 cents, with 2 cents added for each degree upward to 40 degrees and above at 85 cents.

Column 2—Led by Continental Oil Co., effective November 2, and followed on same day by other purchasers.

Column 3—Led by Humble Oil & Refining Co., effective November 2.

Column 4—Led by The Texas Company, November 2, followed by Humble Oil & Refining Co., Gulf Pipe Line Co. and H. F. Wilcox Oil & Gas Co. same day.

Column 5—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co. and Gulf Pipe Line Co.

Column 6—Midwest Refining Co., November 2.

Column 7—Standard Oil Co. of Louisiana, November 4, 1931; The Texas Company, Gulf Refining Co. and Louisiana Oil Refining Co. same day.

Column 8—Led by The Texas Company, followed on same day by Humble Oil & Refining Co., Vacuum Oil Co., Gulf Pipe Line Co. and Sun Oil Co., but two last named companies' schedules stop at 35 degrees and above at 81 cents, and the Sinclair Refining Co., but latter company's schedule stops at 31 degrees and above at 71 cents.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) the allowable crude oil produced in accordance with allocations made by the California State-wide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea, Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$ .65	$ .65	$ .65	$ .65	$ .65	$ .65	$ .65	$ .65	...	$ .55	$ .55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
22-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$ .65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28 28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-34.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—55 cents for all grades (14° to 25.9°).

Whittier and LaHabra—55 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents, 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

(Continued on Page 96)

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Dec. 15

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	14.9	15 9	4 0	9 25
McCook	17 0	17 0	4 0	7 5
Norfolk	16.75	17.75	4 0	9.75
N. Platte	17 75	18.75	4 0	10.50
Scottsbluff	17.0	17.0	4 0	9.0

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

PACIFIC COAST TERRITORY

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank truck	Posted wh'is'e*	Incl'ds tax of	tank wagon
Fresno	12.5	16.5	3 0	17.0
San Francisco	12 5	16.5	3 0	15 5
Los Angeles	12 0	16.0	3 0	15.5
Reno, Nev.	16 5	20 5	4.0	19.0
Portland, Ore.	14 0	18 0	4 0	16 5
Seattle, Wash.	15.0	19 0	5.0	16.5
Tacoma	15 0	19.0	5 0	16.5
Spokane	18 5	22.5	5 0	20.5
Phoenix, Ariz.	14.5	15 5	5.0	20 0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16 6	17 6	2.0	15.6
New York*	12 3	14.3	2 0	14 3
Buffalo	15.8	15 8	2 0	14.8
Rochester	16 0	16.0	2.0	14 0
Syracuse	16.8	16.8	2 0	14 8
Boston, Mass.	16 5	16.5	3 0	13 5
Augusta, Me.	18 8	18.8	4 0	14 8
Manch'tr, N. H.	18.4	18 4	4 0	14.0
Burlington, Vt.	19.3	19 3	4.0	15.3

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.	14 5	14.5	6.0	12 0
Baton Rouge	16 5	17.0	5 0	12 0
Alexandria†	15.5	15 5	6.0	12 0
Lafayette*	17 5	18.0	6 0	12.0
Lake Charles*	16 5	16 5	6.0	12.0
Shreveport	16.5	17 0	5 0	12 0
Knoxville, Tenn.	20.0	20 5	6 0	13.5
Memphis	16 0	16.0	6.0	10 0
Chattanooga	19.5	20.0	6.0	11.0
Nashville	19.0	19 5	6 0	12 5
Bristol	19.0	20.0	6 0	14.0
Lt. Rock, Ark.	17.5	18.0	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	11 7	6.0
V.M.P. naphtha	13.7	7 5
Cleaners' naphtha	15.2	9.0
Stanisol	15.2	9.0

Tank wagon prices f.o.b. Chicago and Whiting, effective Nov. 6.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more, 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light aero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 aero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago	15 0	15.0	3.0	9 0
Decatur, Ill.	15.4	15 4	3 0	9.0
E. St. Louis	14 7	14.7	3.0	8.2
Joliet	15.4	15 4	3.0	9 0
Peoria	15.4	15.4	3 0	9.0
Quincy	15 2	15 2	3 0	8 8
Davenport, Ia.	12.9	15.5	3.0	9.3
Des Moines	14.4	12.9	3.0	8.0
Keokuk	15.5	15.5	3 0	6 3
Sioux City	15 1	15 1	3.0	8.9
Duluth, Minn.	16.5	16 5	3 0	9.9
Mankato	16.1	16 1	3.0	8 0
Minneapolis	14 4	14.4	3.0	9 9
LaCrosse, Wis.	17.2	17.2	4 0	10 0
Milwaukee	16.1	16 1	4 0	8.9
Madison	16 3	16.3	4 0	9.1
Detroit, Mich.	14 5	14.5	3.0	10 7
Grand Rapids	15 7	15 7	3 0	10 6
Saginaw	15.9	14.6	3.0	10.8
Evansville, Ind.	16 1	16.1	4.0	9 9
Indianapolis	16.3	16 3	4 0	10.1
South Bend	16 4	16 4	4 0	8 9
Fargo, N. D.	17 9	17.9	3.0	11.9
Huron, S. D.	17 3	17.3	4.0	10 7
Sioux Falls	16 8	16.8	4 0	10 4
K. C., Mo.	14 9	14 9	3 0	7 6
Springfield*	14.9	14.9	3 0	8 5
St. Louis*	13.9	13.9	2 5	8 3
St. Joseph	10 4	10.4	3 0	7 5
Wichita, Kans.	13.8	13.8	3.0	6.0
Bartlesville, Ok.	14 0	16 0	5.0	7.0

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 1¼ cents or more below the price on the regular grade.

Effective November 4—New dump discount applicable on all grades of gasoline sold from tank wagon. Any tank wagon customer buying 25 gallons or more at one time will be given 1-cent discount per gallon off tank wagon price at time of delivery. Customers not under contract receive no other discount.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	14.0	15.0	4.0	8 0
Fort Worth	14 0	15 0	4.0	7 0
Houston	13 0	15 0	4 0	8.0
San Antonio	13.0	15 0	4 0	7 0
El Paso	15 0	17.0	4.0	10.9
Texarkana	13 0	15.0	4 0	8 0
Muskogee, Ok.	10.0	12.0	5 0	8.0
Okla. City	14 0	16 0	5 0	7 0
Tulsa	14 0	16 0	5.0	8.0
Ft. Smith, Ark.	*16.5	17.0	5 0	*11.0
Little Rock	*17.5	17.0	6 0	*11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

*Less 2 cents to dealers.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	12.0	15 0	4 0	12.5
Pueblo	12.0	15.0	4 0	12 0
Grand Jctn.	18.0	21.0	4.0	14 5
Casper, Wyo.	15.0	18 0	4.0	10 0
Cheyenne	†14 0	14 0	4 0	11 5
Butte, Mont.	17 0	20.0	5 0	16.0
Billings	20 0	23.0	5.0	14.5
Great Falls	21 0	23 0	5.0	16 0
Helena	21 0	24.0	5 0	16 0
Salt Lake, Utah	17 5	20.5	4.0	16 0
Albu'que, N. M.	18 0	21.0	6.0	14.0
Boise, Idaho	21 0	24 0	5.0	18 0
Twin Falls*	20 5	20 0	5 0	18 0

*2½-cent discount off tank wagon to dealers.

†3-cent discount off tank wagon to dealers.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points	15.0	16 0	4.0	*13.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15.0	16 0	3 0	11 0
Philadelphia	14.0	15.0	3 0	11.0
Scranton	15 0	16.0	3.0	11 0
Allentown	15 0	16.0	3 0	11.0
Altoona	15 0	16 0	3 0	11 0
Erie	15 0	16 0	3.0	11.0
Dover, Del.	15.0	16.0	3 0	11.0
Wilmington	15 0	16.0	3 0	11.0
Springf'd, Mass.	11.5	12.5	3.0	10.0
Worcester	14 3	15.3	3.0	10 0
Boston	13 5	14.5	3 0	10.0
Providence, R.I.	11.5	12.5	2.0	8.5
Hartford, Conn.	14.5	15.5	2.0	10.0
New Haven	14 6	15 6	2 0	10.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.*	19.0	19 0	6.0	12 5
Augusta	20.0	21 0	6.0	14.0
Macon	20 0	20.0	6 0	12 9
Savannah	19 0	19 0	6.0	13 0
Birm'ham, Ala.	19.0	19.0	6.0	13.0
Mobile	17.5	17 5	5.0	10.0
Montgomery	21.0	20.5	6.0	13.5
Jackson, Miss.	18 0	18.0	5 5	11 5
Vicksburg	18.0	18 0	5 5	8.0
Jack'ville, Fla.	20 0	21 0	7.0	11 0
Miami	21.0	22.0	7 0	13.0
Pensacola	20.0	20.0	7.0	13.0
Tampa	20.0	20.0	7.0	12.0
Lexington, Ky.	17 0	18 0	5.0	12 0
Covington	18 0	19 0	5 0	12.0
Louisville	16.0	17.0	5.0	11.0
Corbin	18 0	19.0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

*An additional discount of 1 cent is offered to dealers here effective October 6.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	15 7	16 7	3 0	11.5
Newark	14 7	15 7	3.0	10 5
Annapolis, Md.	16 2	17 2	4 0	11.0
Baltimore	15.4	16.4	4 0	8.5
Cumberland	17.2	18.2	4 0	12 0
Wash'g'n, D. C.	13 9	14 9	3.0	10 7
Danville, Va.	18 0	19.0	5 0	11 8
Norfolk	16.5	17 5	5.0	10.3
Petersburg	17 5	18.5	5.0	11 3
Richmond	16.9	15 9	5 0	10.7
Roanoke	17.7	16 7	5 0	12 0
Charles'n, W.Va.	16.7	17 7	4.0	11.5
Keyser	17.3	18 3	4 0	12.1
Parkersburg	15.4	16 4	4 0	10.3
Wheeling	16 6	17.6	4 0	11 4
Charlotte, N. C.	17 5	18 5	6.0	10.7
Hickory	19 3	20.3	6.0	12 6
Mt. Airy	19 7	20.7	6 0	12.5
Raleigh	19 4	20 4	6.0	12 3
Salisbury	19.7	20 7	6 0	12.5
Charleston, S.C.	17.5	18 5	6 0	10 3
Columbia	19.4	20 4	6.0	12 3
Spartanburg	19.7	20.7	6.0	12.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and States of Maryland and New Jersey, where discount is 3 cents.

TANK WAGON CHANGES

Atlantic Refining Co. effective December 9 advanced gasoline tank wagon and service station prices, 1½ cents at Hartford, Conn. Same company effective December 8 reduced gasoline tank wagon and service station prices 1½ cents at Springfield, Mass. Company effective November 27 reduced kerosene tank wagon price 1½ cents at Providence, R. I.

Standard Oil Co. of Indiana effective

(Continued on Page 100)

CRUDE OIL PRICES

(Continued from Page 89)

Stephens, Ark., below 29° (Aug. 24, 1931)	.41
Stephens, Ark., 29° and above (Aug. 24, 1931)	.46
Other fields	See gravity table

Note—Smackover, all grades, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co. Bellevue posted by Magnolia Petroleum Co.; Urania by H. L. Hunt, Inc., and Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Nov. 2, 1931)‡	$ .60
Luling (Nov. 2, 1931)†	.49
Mirando (Nov. 2, 1931)†	.71
Pettus (Nov. 2, 1931)*	.81
Salt Flat (Nov. 2, 1931)*	.46
Thrall‖	
Lytton Springs (Lockhart)	See gravity table
Dobrowolski‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°.	
Somerset¶	
Same as M'd-Continent gravity scale up to and including 38-38.9°.	

‡The Texas Company. *Humble Oil & Refining Co. †Magnolia Petroleum Co. ‖Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Ilse, light (Aug. 24, 1931)	$ .71
Ilse, heavy (Aug. 24, 1931)	.53
Fort Collins (Nov. 2, 1931)	.71
Florence (Nov. 2, 1931)	.65
Wellington (Nov. 2, 1931)	.61
Dutton Creek (Nov. 2, 1931)	.75
Rock Creek, Wyo. (Nov. 3, 1931)	.85
Frannie, light (Nov. 2, 1931)	.61
Frannie, heavy (Nov. 3, 1931)	.53
Salt Creek	Mid-Continent gravity table
Big Muddy (Nov. 3, 1931)	.53
Grass Creek (Nov. 2, 1931)	1.05
Elk Basin (Nov. 3, 1931)	1.05
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.90
Lost Soldier (Nov. 3, 1931)	.60
Hamilton Dome (Nov. 3, 1931)	.45
Greybull (Nov. 3, 1931)	1.05
Cat Creek (Nov. 3, 1931)	1.05
Pondera (Nov. 3, 1931)	.90
Sunburst, Mont. (Nov. 3, 1931)	1.00
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Nov. 3, 1931)	.50
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Nov. 3, 1931)	.50

Note—Salt Creek, Cat Creek, Dry Creek Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective November 3, 1931)

Lima	$1.00
Wooster	1.15
Illinois	.91
Indiana	.80
Princeton	.95
Plymouth	Shut in
Western Kentucky	.90
Midland, Mich. (Oct. 9, 1931)*	.51
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich.†	
Same as Mid-Continent gravity scale	
Somerset, Ky. (Nov. 4, 1931)	.80
Hart County, Ky. (Nov. 1, 1931)‖	.80

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‖Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through its own pipe line.

MEXICO

Panuco*	$ .45

*F.o.b. ship, based on October transactions and exclusive of production and export taxes and bar dues.

CANADA

Ontario (Nov. 2, 1931):	
Petrolia*	$1.90
Oil Springs*	1.97
Alberta (Aug. 24, 1931):	
Turner Valley†:	
Crude oil 45-45.9	2.65
Crude oil 50 and above	2.65
Crude naphtha	2.15
Discolored naphtha	1.85

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Of Interest to Sales Departments

PAN AMERICAN PLANS TO INCREASE GERMAN TRADE

NEW YORK, Dec. 14.—The Pan American Petroleum & Transport Co. (Standard Oil Co. of Indiana) is negotiating with the Naphtha Industrie & Tank Farm Co. (Nitag) for the distribution of American gasoline in Germany by Nitag, according to Berlin cables. Robert G. Stewart, president of Pan American, is at present in Europe.

The German company proposes to increase its capital from 2,550,000 to 5,600,000 reichsmarks, the additional shares to be acquired by Pan American. The German company will retire from the German gasoline convention, to permit free competition with other German distributors.

Pan American owns and operates a refinery in Hamburg, producing principally asphalt and distillates. The plant has capacity of 5,000 bbls. daily. British operations of Pan American were enlarged this year when the company bought control of the Petroleum Storage & Finance Co., Ltd., a holding company for a group of British oil marketing units.

COLORADO MARKETERS IN DRIVE ON TAX CHEATERS

DENVER, Colo., Dec. 15.—Colorado marketers of gasoline have organized the Colorado Gasoline Tax Evasion Committee to launch a state-wide campaign against gasoline bootlegging, fraudulent refunds of taxes and other evasions of the gasoline tax laws.

The committee is composed of H. C. Bretschneider, vice president of the Midwest Refining Co., chairman; F. C. Brooks, Denver Powerine Co.; C. H. Foster, of the Colorado Petroleum Marketers Association; W. E. Bradford, The Texas Company; A. W. Blank, Phillips Petroleum Co.; W. E. Thomas, Navy Gas & Supply Co.; E. D. Valentine, Sinclair Refining Co.; F. L. Cochran, Standard Oil Co. of Indiana; M. O. Danford, Midwest Refining Co., and J. A. Lentz, Continental Oil Co. The executive committee consists of Bretschneider, Brooks, Cochran, Bradford, Thomas and Lentz.

A conference with Governor Adams and State Oil Inspector James Duce is to be held to seek authorization for a state-wide investigation of tax evasion methods and arrest and prosecution of violators of the law. A similar committee is being formed in Wyoming.

SAYS HE CAN PROVE CLAIMS

NEW YORK, Dec. 14.—Replying to a complaint by the Federal Trade Commission, William H. Johnson, trading in Dallas, Tex., as the Technical Chemical Co., says he expects to prove the truth of all advertising claims made by him, and questioned by the commission. His company markets, "ester compound," which he asserts, when used with gasoline in automobile motors, minimizes detonation, reduces carbon, neutralizes the action of gum, corrects other faults in gasoline, and lubricates the combustion cycle. The commission denies that the compound accomplishes these results.

TAX COLLECTIONS SHOW RISE

CHICAGO, Dec. 15.—Gasoline tax collections in Illinois for July, August, September and October 1931, show a rise of $726,000 as compared with the same months in 1930, Garrett Kinney, director of state finance, said today. The collections for the four months in 1931 were $11,782,000. For 1930 in the same period they were $11,056,000.

MAKES OIL TO PROTECT ARMOR

NEW YORK, Dec. 14.—Chemists of the Standard Oil Development Co. were asked recently by officials of the Metropolitan Museum of Art to produce a special oil to protect exhibits of medieval armor against rust. Ordinary household lubricants served for protection on exposed armor but in the case of particularly valuable armor placed in showcases there was a tendency for the oil to cloud the gas. The company's chemists developed a product of white oil compounded with lard oil, which has proved so effective that other museums now are being supplied.

TIDE WATER FEATURING UNIQUE OPERATING TEST

The Tide Water Oil Sales Corp., sales subsidiary of the Tide Water Oil Co., is featuring two unique tests recently made with its gasoline and lubricating oils, in its newspaper advertising.

In its gasoline test an automobile was placed in the refrigerating room of the Seaboard Terminal Co. The car, which was covered with ice, remained in the room 12 hours at 29 degrees below freezing. The operator then stepped on the starter of the car and the engine started in one-half second. The operation was checked by Lieut. Thomas Mulroy, chief engineer of the Byrd Antarctic Expedition. In addition to the "split-second starting" of the "New Winter Tydol" gasoline the antiknock and high test qualities of the gasoline are emphasized. The gasoline is the regular grade of the Tide Water gasoline.

A similar test of "Winter Veedol," the 100 per cent Pennsylvania motor oil of the Tide Water company, is also featured in the company's advertising and sales activities. In the case of the motor oil a can of the oil was frozen solidly in a cake of ice for 12 hours at 29 degrees below freezing. This oil was then placed in the crankcase of the frozen engine and in operation "gushed instantly to every bearing and to every moving part of the icy motor."

TESTS REVEAL DRIVERS USE BOOTLEG GASOLINE

A campaign against bootleg gasoline has been opened in Seminole County, Oklahoma, by John Livingston, state gasoline inspector, assisted by Deputy R. H. Conrad, of Bowlegs. Tests of gasoline in automobiles in the Little River district revealed, they said, that two out of three motorists were using casinghead gasoline on which no tax had been paid.

In Seminole City tests showed two out of 10 cars were operated on untaxed "drip" gasoline.

Names of the offending motorists were transmitted to authorities at the state capital for possible prosecution. Inspector Livingston pointed out that the minimum fine for violation of the gasoline tax law was $100. Similar investigations will be made in other counties, he said.

TO FIGHT GAS TAX EVASION

At the annual meeting of the Nebraska Petroleum Marketers Association held last week at Omaha, T. J. H. Wiegand was appointed chairman of a committee which will fight the gasoline tax evasion evil in Nebraska. Mr. Wiegand and others attending the meeting declared that tactics of rum runners are being copied by gasoline racketeers dealing in millions of gallons of illicit gasoline. This gasoline, it was declared, is brought into the State by trucks, largely from Kansas, without payment of the 3-cent Nebraska tax.

OIL BURNER BUSINESS IMPROVES IN OCTOBER

WASHINGTON, D. C., Dec. 14.—The oil burner industry was on an upgrade in October, new orders and shipments increasing and unfilled orders and stocks decreasing, as shown by the Bureau of the Census.

The new orders were 13,542 against 12,329 in September. However, this was a decrease from October, 1930, when the number was 18,152, and October, 1929, when the number was 17,549.

Shipments in October numbered 13,868 against 12,025 in September. In October, 1930, shipments numbered 18,201 and in October, 1929, the number was 19,257.

While these increased orders and shipments in October over September were seasonal it is believed the November business will make a good showing through increased introduction of oil burners in homes, the chief source of support of the industry.—C.E.K.

ROAD EXPERT SAYS OIL CORRECTS "WASHBOARDS"

An asphaltic oil treatment is Wyoming's cure for a corrugated gravel road, according to Z. E. Sevison, state highway superintendent. A crushed rock or gravel surface for roads gives excellent service for both passenger and truck traffic, he says, but when the volume of traffic increases to between 500 and 1,000 vehicles per day, the surfacing quickly develops "washboards," also often called corrugations, ripples, chatter-bumps, etc.

The speed of vehicles, type of tires and shock absorbers are factors which enter into the formation of washboards.

It has been found that a car with high pressure tires going 35 to 40 miles an hour will cause these "bumps" in 36 trips. The same car going 25 miles an hour can make 100 trips before they appear. On the other hand, a car with low pressure tires can travel as fast as 40 miles an hour for 360 trips before corrugations appear, and if the car has shock absorbers they will not appear until 570 trips at the same speed.

At the end of 1926, Wyoming had approximately 1,000 miles of gravel, shale or broken stone roads. Much of this mileage was corrugated from time to time. Treatment of this surfacing with asphalt oil began in 1927 and it soon was found that it was not only preventing the loss of surfacing caused by wind, wear and water, but there was an absence of corrugations.

Where traffic warranted it (500 or more vehicles per day), and the funds were available, the surface was treated with asphaltic oil so that at present Wyoming has approximately 1,000 miles of oiled roads. There are still approximately 1,000 miles of gravel surfaced roads in the state because in the meantime many more miles of highways have been surfaced with gravel which do not yet have traffic enough to warrant oiling.

TO PROSECUTE TAX CHEATERS

TOPEKA, Kans., Dec. 14.—The first prosecutions of gasoline tax evaders are to be brought by Seth G. Wells, state oil inspector, as rapidly as the papers can be drawn. The inspectors of the department have four complete cases in which the investigations are ended and the facts ready to present to the attorney general or a special assistant to be named for tax evasion prosecutions. Ever since the new law was passed by the 1931 legislature, exempting those using gasoline for tractors, stationary engines and purposes other than motor vehicle fuel, it has been asserted the state was losing thousands of dollars every month.

UPSETS OLD THEORIES OF AXLE LUBRICATION

STATE COLLEGE, Pa., Dec. 14.—Old theories of axle lubrication will have to be modified as a result of tests carried out at Pennsylvania State College, where oil films two ten-thousandths of an inch thick support weights averaging almost a quarter ton per square inch. The films are formed in high-speed machine bearings.

The experiments show that oil films capable of carrying these extreme weights may be had simply by placing the oil holes properly. When that is done, "riding on oil" becomes a literal fact. The tests are under direction of Louis J. Bradford, professor of mechanical design.

The hub of a wheel turning around its axle illustrates what the testing devices have disclosed. The weight rests on top of the hub, pressing it against the axle which supports it, with the expected result that underneath the axle there is more space than on top where the pressure comes.

As the wheel speeds up its revolutions around the axle, oil is dragged upward into the narrow top area and compressed until it acquires tremendous weight-sustaining power.

By increasing the weight upon a revolving bearing, Mr. Bradford found that the maximum compression of the oil rose faster than the weight. One hundred pounds of weight upon the testing machine resulted in a maximum of 250 pounds to the square inch compression in the oil film. But a weight of 400 pounds produced a maximum oil film pressure of 1,400 pounds to the square inch.

Although almost too thin to be visible, the oil film at this compression completely separated the two metallic surfaces. At weights above 400 pounds to the square inch, the oil film began to break down and allow the metal faces to rub each other.

The old-fashioned position for an oil hole was directly above the bearing. In that location the hole destroys the compression, and even a light weight makes the metal surfaces rub. Instruments show that the oil should enter the space underneath the axle opposite the load, where the pressure is so low that oil is actually sucked in automatically. High pressure oil feed systems are found unnecessary. Four or five pounds pressure in the oil pump is sufficient for perfect lubrication.

With such a bearing arrangement, the higher the speed the better the oil film develops and the better it sustains the weight. Some bearings can be improved by making them smaller and narrower. The smaller area is compensated for by an increase in perfection of the oil films.

HIGH COURT DECLINES TO ACT ON TAX APPEAL

WASHINGTON, D. C., Dec. 14.—Yale Oil Corp. of South Dakota with refinery and distributing stations in Montana paid 2 cents a gallon state tax on its gasoline in 1926 and carried a portion of this gasoline over into 1927 in which year the state tax was raised to 3 cents a gallon. State authorities required the company to pay an additional tax of 1 cent on the portion of the gasoline carried over making it equal to the 1927 tax. The company appealing to the Supreme Court of the United States against the right of the State to enforce the additional tax, the court today declined to act on the appeal on the ground that there was no substantial federal question involved.

Last Quarter Earnings To Show Gains

Major Units in Reports for December Quarter Expected to Indicate Definite Turn for Better—Tax Sales Force Market Off

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Dec. 14.—Reports in various quarters of the oil industry here indicate a decided turn for the better with respect to sentiment on earnings for 1932. Reports of major units for the December quarter, it is reported, will show decided improvement over those for the first three-quarters of the year, and the appreciable improvement in inventory position will tend to bolster annual reports somewhat.

Notwithstanding the indications of a better earning position for the industry during 1932, however, present market sentiment continues bearish, and a market which has moved without rhyme or reason during the greater part of the year encounters no difficulty in discounting the more constructive outlook with respect to petroleum issues.

A number of new lows were made during the week's trading, and the market for petroleum securities, as a group, again presents the appearance of overdeflation which has been so marked at other times during the year.

Casterton on Jersey Board

J. W. Casterton, purchasing agent of the Standard Oil Co. of New Jersey, and co-ordinator of purchases for subsidiaries of the Standard Oil Co. (New Jersey), has been elected a member of the board of directors of the Delaware company.

Mr. Casterton started with the company as a stenographer in the office of S. B. Hunt in May, 1905. He was transferred to the purchasing department of the Buffalo office in the following year and in 1911 went to Sarnia, Ontario, as purchasing agent for Imperial Oil, Ltd.

In 1916 Mr. Casterton moved his headquarters to the head office of Imperial Oil at Toronto, and in July, 1921, was transferred to 26 Broadway as co-ordinating purchasing agent of the Standard Oil Company (New Jersey).

Swan-Finch

One of the constructive features of the week was a report indicating the likelihood of an early resumption of dividend payments by Swan-Finch Oil Corp.

Dow-Jones & Co., summarizing the outlook with respect to Swan-Finch, say: "If business of the Swan-Finch Oil Corp. continues to hold at the level established in the first quarter of the company's fiscal year, which began July 1, 1931, and indications are that it will, there is a strong possibility that directors will consider the resumption of preferred dividend payments at their January meeting. Dividend payments on the 7 per cent $25 par cumulative preferred stock, of which there are approximately 7,595 shares outstanding, were omitted at a directors' meeting January 9, 1931, last payment of 43¾ cents being made on December 1, 1930. Back dividends on the preferred stock will amount to about $13,000 when directors meet in January.

"Capital of the company amounts to 40,000 shares of $25 par 7 per cent cumulative preferred stock, of which about 7,595 shares are issued and outstanding, and 160,000 shares of $25 par common, of which approximately 34,480 shares are issued and outstanding.

Gulf Oil

Gulf Oil Corp. of Pennsylvania omitted the quarterly dividend of 37½ cents due at this time.

The company issued the following statement: "In view of existing business conditions the board of directors of the Gulf Oil Corp. of Pennsylvania considers it prudent and to the best interests of the corporation to omit the quarterly dividend usually declared at this time."

In 1930, the company reported net profit of $10,625,252 after all deductions, equivalent to $2.35 a share on the 4,525,221 shares of $25 par capital stock. This report including a deduction of approximately $12,400,000 on account of inventory adjustment, which was equal to almost $2.75 a share.

For 1929 the Gulf company had net profit of $44,489,685, or $9.83 a share. Although the company over a period of years has had earnings greatly in excess of dividend requirements, it has limited annual payments to $1.50 a share, the excess earnings being reinvested.

In June, 1930, an issue of $60,000,000 Union Gulf Corp. collateral trust sinking fund 5 per cent bonds was brought out. This company was organized under the laws of Pennsylvania by Gulf Oil Corp. of Pennsylvania and certain of its stockholders, to conduct directly or through subsidiaries the business of transporting, refining, distributing and marketing of petroleum and its products. A crude oil pipe line from the Mid-Continent was constructed, extending to refineries acquired or built at Toledo and Cincinnati, Ohio, and Pittsburgh, Pa.

These bonds were secured under a trust indenture through pledge with the trustee of 200,000 shares of Pullman, Inc., capital stock, 140,000 shares of Aluminum Co. of America common, 60,000 shares of Pittsburgh Plate Glass Co. common, 60,000 shares of Pittsburgh Coal Co. preferred, and 30,000 shares of United States Steel Corp. common. At market prices at the time the Union Gulf bonds were offered, the collateral represented an aggregate market value of more than $80,000,000. The indenture, however, provided that the corporation was to maintain securities on deposit with the trustee with aggregate market value equal at all times to at least 130 per cent of the principal amount of the bonds outstanding.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Apr. 22	22.73	Aug. 19	24.25
Apr. 29	20.54	Aug. 26	23.26
May 6	20.74	Sept. 2	22.30
May 13	20.38	Sept. 9	20.23
May 20	19.25	Sept. 16	18.30
May 27	18.35	Sept. 23	17.64
June 3	18.00	Sept. 30	15.83
June 10	19.62	Oct. 7	15.86
June 17	19.23	Oct. 14	16.43
June 24	22.33	Oct. 21	17.58
July 1	22.32	Oct. 28	16.80
July 8	21.24	Nov. 4	18.86
July 15	19.79	Nov. 11	18.76
July 22	21.33	Nov. 18	17.60
July 29	20.68	Nov. 25	16.68
Aug. 5	20.80	Dec. 2	16.09
Aug. 12	21.00	Dec. 9	15.38

Jersey Employe Stock Plan

The fourth employe stock acquisition plan of Standard Oil Co. (New Jersey) will go into effect January 1, 1932.

"Employes of the Standard Oil Co. (New Jersey) and its subsidiaries who participated in the third stock acquisition plan will compose nearly one-fifth of its 124,000 stockholders when their certificates are turned over to them after the first of the year" the company's announcement says.

"Approximately 1,678,900 shares of common stock, valued at this writing at $50,367,000, will be in the possession of employes at the close of the third plan, it has been estimated. On an individual average, Standard Oil Co. (New Jersey) employe-stockholders own approximately 70 shares, or $2,100 worth of stock, each.

"Because of the economic situation during the past two years the progress of the third stock acquisition plan, and particularly the question of how many employes would withdraw from participation, has been watched with interest. The records of the trustees show that not only have there been comparatively few withdrawals from the plan as a result of general conditions, but that the number of employes who will share in the distribution of the third plan stock now in the hands of the trustees is considerably greater than at the close of any previous plan. Some 24,000 participants will be receiving certificates soon after the accounts are closed, compared with 19,464 at the end of the second plan and 16,358 at the end of the first.

"The fourth stock acquisition plan as approved by the stockholders last June left the question as to whether the plan should go into effect the first of the year or at a later date optional with the company's board of directors. In an action which had no precedent in any previous plan, the trustees sent out a questionnaire to over 19,000 participants in the third plan, putting this question up to them. An overwhelming majority, amounting to 88 per cent of the 15,000 replies received up to November 10, were in favor of starting the new plan on January 1.

"The fourth stock acquisition plan will be practically identical with its predecessors with two important exceptions.

"The most interesting is the fact that under the provisions of the new plan the board will not be bound to purchase treasury stock but may at its discretion go into the open market for shares acquired for sale to the trustees. As in the past, a price for employe subscriptions shall be set by the board of directors, not above the average price of Jersey shares for the three months previous, nor more than 10 per cent below this average. This figure, as fixed on January 1 and July 1 of each year, will govern all purchases of original issue for the succeeding six months and will in effect be the maximum price. In the event of market quotations dropping below this figure, the Board will have the option of buying shares on the market and selling them to the trustees at cost, so that employes may get the benefit of the lowest price available.

"The other important difference between the provisions of the fourth stock plan and the previous ones is the matter of eligibility, employes no longer being required to hold stock purchased under the first plan."

New Jersey Insurance Plans

Two new employe welfare measures, the new annuity plan and group insurance, will be put into operation by the Standard Oil Co. (New Jersey) and subsidiaries on January 1, 1932, in addition to a revised form of the present sickness and accident disability and death benefits, which as in the past will be provided solely by the company.

In a letter to employes some months ago, W. C. Teagle, president, explained the necessity for modification of the present plan for annuities and benefits. This provided for annuities figured at the rate of 2 per cent of average annual salary for the last five years of employment, multiplied by the number of years' service, with a maximum annuity of 75 per cent of annual salary. Actuarial study showed that a continuance of the existing provisions would involve an increasing expense which would eventually become burdensome to the company.

In outlining the changes in employe relations, the current issue of "The Lamp," organ of the New Jersey company, says:

The new plan provides for voluntary participation by employes, and is considered by experts to be one of the best of its kind. Under it, an employe is entitled to a 1 per cent annuity for each year of service up to 37½ years, to be paid by the company regardless of whether he himself contributes. Also, he has the opportunity of bringing it up to 2 per cent for each year of service by contributing from 3 to 5 per cent of his current earnings. The new plan has three distinct advantages over the old one.

1. It allows employes with 35 years' service to retire at the age of 60 (women at 50) instead of 65, which is the regular retiring age.

2. After 20 years' contributory service an employe has a vested right, for he may leave the service prior to age 65 with the option of taking a deferred life annuity, starting when he becomes 65 (women 55).

3. The contributory feature is in effect an organized savings plan with compound interest at not less than 3 per cent assured, the company matching the employe contribution practically dollar for dollar in case the contributions are used to provide for old age. Voluntary contributions of employes will be deducted from salaries.

In addition, the annuity plan offers an ironclad safeguard for funds impounded. Not only are employe deposits held in trust, returnable with interest at any time should a subscriber wish to withdraw, but company contributions are likewise safeguarded and not in any way affected by whatever revisions may be made in the plan at any future date. All annuity credits earned up to the time of revision are absolutely safe from change.

The group insurance plan gives full effect to combined purchasing power of the Standard Oil Co. (New Jersey) and subsidiaries who participate in the plan, and employes.

Insurance available to eligible employes equals practically a year's salary, with a maximum of $20,000, and is adjusted annually to conform to changes in an employe's earnings. The present premiums to be paid by the employe amount to 60 cents per month for each $1,000 of insurance. Provision is made for continuance of insurance at the same rate after retirement on annuity, or for continuance without medical examination at a higher rating if the insured leaves the service before becoming eligible for an annuity.

The group insurance plan becomes effective January 1, 1932, if 75 per cent of eligible employes signify their intention of participating. No medical examination is required and the premium rate is the same, regardless of age. Even with the youngest employes the rate is lower than they could obtain on an ordinary life policy.

In addition to the group insurance plan, the company provides at its own expense death benefits, up to a maximum of $2,000 after five years' service, for the dependents of employes not participating in the group insurance plan. Those who do participate, however, receive a maximum death benefit from the company of a full year's salary, after 10 years' service. The complete text of the sickness and accident disability and death benefit plan is not yet ready. However, the main provisions are the same as in the old plan, changes being confined chiefly to the amount of and conditions under which death benefits are to be payable to the various classes of beneficiaries.

Operators For and Against Changes in Rules of Proration

OKLAHOMA CITY, Okla., Dec. 14.—Urging a 50-bbl. marginal allowable for every well in the Oklahoma City Field as a move toward conservation and to permit profitable operation of the well, the Anderson-Prichard Oil Corp. today sought changes in the proration rules at a hearing before the state corporation commission.

Percentage proration would be maintained as would an exemption for water wells of 100 bbls. per day, J. Steve Anderson explained. Allowable would be figured on the remainder of the estimated demand.

The plan met opposition from the Phillips Petroleum and Skelly Oil, with the Phillips company leading in the offensive. The plan was favored by the Shell Petroleum, the Wirt Franklin interests and others.

Testimony on the plan terminated the commission's hearing on proposed rules and regulations at noon today, and it was intimated that it would require some time to go through the various reports. Attorneys were asked to submit written recommendations to the court within 10 days.

TEXAS I.P.A. ELECTS J. R. PARTEN PRESIDENT

DALLAS, Tex., Dec. 15.—At the annual meeting of Independent Petroleum Association of Texas here today, presided over by Tom E. Cranfill, retiring president, a report of organization activities since organization was made. Maj. J. R. Parten read a paper on "Unitization and the Independent," which was followed by a general discussion. Harry Pennington of San Antonio argued against unitization, specifying that he held acreage in Raccoon Bend and Salt Lake Fields under unitized projects and had yet to receive any profits from production under these fields and the plan. Jim Pollard, who holds acreage in Kettleman Hills, cited the unitization of that field and said that in his opinion if the books of the North Dome Association were audited he believed the plan would prove the most expensive, most inefficient and most inequitable plan ever tried, and if the antitrust laws are to be revised to allow forceful unitization of fields that such plans now in use be proven profitable before such changes were made in the law.

The association passed a resolution asking for a tariff on crude petroleum and refined products and advised all members to write to congressmen and senators from Texas, especially Speaker of the House John Garner, asking them to help obtain such a tariff.

A nominating committee was appointed to select a list of directors for 1932, W. P. Burton, chairman, J. E. Spencer and J. M. West, Jr., making up this committee, R. L. Cannon, San Angelo; George McCamey, Fort Worth, and J. R. Parten were named as a committee to select a list of regional and division vice presidents for the ensuing year. Harry Pennington read a paper on the acreage content theory of oil ownership, which was later discussed by the entire meeting.

Maj. J. R. Parten, Woodley Petroleum Co., Shreveport, La., was elected president of the Independent Petroleum Association of Texas at the executive session this afternoon.

George McCamey, Fort Worth, was elected secretary and treasurer; B. F. Weekly, vice president in charge of the producing division; Charles L. Richardson, in charge of royalty owners division. Eight regional vice presidents were named: Mel Davis, Pampa, for Panhandle; C. C. Duffy, Midland, West Texas; T. O. Shoppell, Wichita Falls, North Texas; J. B. Dunnigan, Breckenridge, West Central Texas; W. E. McKinney, Tyler, East Texas; W. C. Stroube, Corsicana, East Central Texas; C. R. Cole, Laredo, Southwest Texas; John Deering, Houston, Gulf Coast.

Resolutions were passed commending the Legislature of Texas for passage of the conservation law; on protesting against "any program seeking to upset and destroy the time honored theory of ownership"; against unitization in Texas; complimenting the attorney general of Texas in lending his efforts to enforce the antitrust laws in Texas, and condemning the chambers of commerce and other groups who are criticizing the attorney general.

W. C. BROWN WILL SELL OIL FIELD SPECIALTIES

Willis C. Brown has returned to the Mid-Continent territory after a two years' absence and opened an office in the Oklahoma Gas Building, Tulsa, which will be his headquarters in selling certain electrical and mechanical specialties used in the petroleum industry.

Mr. Brown's former association in this

Willis C. Brown

section began in 1918 as district manager for the Foxboro company, in which capacity he served until 1928, handling the sale and service of that company's meters and recording instruments in the oil fields. He will also be remembered as the designer of the Spartan airplane at Tulsa, and the organizer of the Spartan company of which he was president until 1929.

A graduate mechanical engineer with 10 years of experience in making technical applications on oil field equipment, Mr. Brown has a wide knowledge of the problems involved in such installations, and is ably fitted to handle the equipment which he is now selling.

He has exclusive contracts in Kansas, Oklahoma and Texas with established manufacturers of high-grade products essential in oil field work. He represents the A. W. Cash Co., Decatur, Ill., which makes a complete line of regulating and reducing valves to fit every service; also, Armstrong Machine Works, Three Rivers, Mich., manufacturers of the Armstrong inverted bucket-type trap, which is used in practically all of the Mid-Continent refineries, as well as being largely employed for automatically relieving gas wells of water. He has secured the representation of Hobart "Constant Arc" welding equipment, made by Hobart Brothers Co., Troy, Ohio, such equipment being widely used in pipe line work, fabrication of refinery and gasoline plant units, hard facing of bits, and maintenance of equipment. He also handles the line of well-known "Red Seal" industrial engines built by Continental Motors Corp., Detroit, Mich.

BILLS FOR OIL TARIFF PUT BEFORE CONGRESS

WASHINGTON, D. C., Dec. 14.—Domestic oil and derivatives would be protected from competition of imports by a heavy duty, if a bill introduced into the Senate by Senator Shortridge (Republican, California) should become law. The measure calls for a tax of $1 upon each barrel of imported crude petroleum or fuel oil derived therefrom, and 50 per cent ad valorem upon kerosene, naphtha, benzine, gasoline, paraffin, paraffin oil and all other distillates, derivatives or refined products of petroleum.

The bill sets forth that the ad valorem rate shall be based upon the American selling price definition of the tariff act, unless there is no similar competitive article manufactured or produced in the United States, when the ad valorem rate shall be based upon United States value.

A somewhat similar bill was introduced in the House by Representative Hastings of Oklahoma.

Representative Swing (Republican) of California has introduced a bill providing that during the calendar years 1931, 1932 and 1933 the total importations of crude petroleum shall be limited to 16,000,000 bbls. per year and the total importations of crude from any one country for each of these years shall be limited to such proportions of the total 16,000,000 bbls. as the amount of crude petroleum imported into the United States from said country during the same calendar year 1928 bore to the total importations of crude petroleum for said year 1928.

The Swing bill also provides that the importation of all refined products of petroleum, including by-products and fuel oil, shall be prohibited for three years. Imports for scientific purposes are excepted.

An embargo on the importation of crude and refined mineral oils is proposed in a bill introduced in the House by Representative Crail of California. This embargo would become effective 30 days after the passage of the bill and continue until Congress places a tariff duty on such oil. It is also provided that after one year the President shall have power to suspend the embargo.

Governor Seligman of New Mexico has sent a letter to President Hoover, in cooperation with the governors of 11 other states, asking the President for assurance of his support of legislation to permit him to place an embargo on importations of oil—C. E. K.

OIL IMPORTS DISCUSSED BY SECRETARY LAMONT

TOPEKA, Kan., Dec. 14.—Secretary of Commerce Lamont, replying to an inquiry from Thurman Hill of the Kansas Public Service Commission, wrote:

"Judging from the difficulties encountered in bringing about the original reduction of 25 cents (on basis of 1928 imports), I believe it will be practically impossible to bring these companies to your point of view; and even if they agreed, it is doubtful if this reduction in imports would accomplish what you have in mind.

"Those companies operating in the foreign field will not close their plants. They most certainly will make an effort to market their products in foreign countries, and this will have the effect of cutting down our exports of these products. For many years our total exports of oil products have been more than double our total imports. As you know, our exports of gasoline have been three to four times our imports.

"The solution of the problem, therefore, seems to be in an understanding with all foreign producers, and this, I believe, can be best brought about by your own committee, as suggested in my address at the meeting of the American Petroleum Institute in Chicago November 11.

"In view of present disturbed world economic conditions, I doubt if much can be accomplished in the way of international co-operation for some months at least."

BROCK-LEE WITHDRAWS

AUSTIN, Tex., Dec. 15.—Attorney General James V. Allred and Special State's Attorney E. F. Smith were notified today that the Brock-Lee Oil Co. has withdrawn as plaintiff from the oil injunction suits in Federal Court brought against Gov. Ross S. Sterling, Brig. Gen. Jacob F. Wolters, the Railroad Commission and other state officials to restrain enforcement of the conservation law in the East Texas oil field. State attorneys were notified by Joseph W. Bailey, Jr., attorney, that E. Constantin and J. E. Wrather, other plaintiffs, will continue the suits. Hearing has been set for January 4, after Federal Judge Randolph Bryant granted a temporary restraining order which Brigadier General Wolters, in martial law command, said he was not authorized to comply with during existence of martial law.

W. T. GRISWOLD DEAD

William Tudor Griswold, retired civil engineer and geologist, died in North East, Pa., at the age of 72 years. He was with the U. S. Geological Survey for 23 years, following which he was engaged in Mexico and Colombia.

THE OIL MAN'S CALENDAR

December, 1931

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

January, 1932

9-15—Detroit, Mich., convention and road show, American Road Builders Association, Airport Building.

9-16—New York, National Automobile show.

11-12—Fargo, N. D., North Dakota division, Northwest Petroleum Association, Waldorf Hotel.

14—Memphis, Tenn., Tennessee Oil Men's Association, Peabody Hotel.

14-15—Minneapolis, Minn., Minnesota division, Northwest Petroleum Association, Radisson Hotel.

21-22—Oklahoma City, Okla., Oklahoma Petroleum Marketers Association.

25-29—Detroit, Mich., annual meeting, Society of Automotive Engineers.

27-28—Milwaukee, Wis., Wisconsin Petroleum Association, Hotel Pfister.

30-February 6—Chicago, Ill., National Automobile show.

February

1-7—Los Angeles, Calif., third annual Oil Equipment and Engineering Exposition.

9—Louisville, Ky., Kentucky Petroleum Marketers Association, Brown Hotel.

9-10—Des Moines, Iowa, eleventh annual convention, Iowa Petroleum Association, Fort Des Moines Hotel.

17-18—Springfield, Ill., Illinois Petroleum Marketers Association, Leland Hotel.

23-25—Columbus, Ohio, Ohio Petroleum Marketers Association, Deshler-Wallick Hotel.

March

23-25—Detroit, Mich., Michigan Oil Men's Association, Statler Hotel.

24-26—Oklahoma City, Okla., American Association of Petroleum Geologists, Biltmore Hotel.

28-April 1—New Orleans, La., American Chemical Society.

April

11-16—Boston, Mass., Ninth annual convention, American Oil Burner Association.

21-22—Cleveland, Ohio, semiannual meeting, National Petroleum Association, Hotel Cleveland.

PUMP STATION WORKED BY REMOTE CONTROL

(Continued from Page 18)

stream to continue straight through the main line to the capacity of the line

Control panel located in office of chief dispatcher for the Texas-Empire Pipe Line Co., Tulsa, through which the station at Sand Springs is operated.

minus the booster station at Sand Springs.

Strainer Equipment

The station at Sand Springs and other centrifugal pump stations along the main line are equipped with a system for oiling an internal main bearing and for cooling the lubricating oil in the thrust bearings with oil taken from and returned to the main pipe line. All oil entering the main line is passed through a coarse mesh strainer at each Diesel station and the various centrifugal stations are equipped with special strainers made of about 50-mesh wire screen cloth that will remove any foreign material coarser than that mesh from that part of the oil used for bearing lubrication and cooling.

As first equipped, the strainers did not have capacity great enough to permit of continuous operation of more than a few hours, and while station attendants were there at all times this was not objectionable, for they could easily clean the strainers as they clogged.

With the Sand Springs station operated by remote control it became necessary to supply strainers of larger capacity which will furnish oil for 16 hours or more at a time without the necessity of cleaning. From these strainers crude oil is carried by a quarter-inch line to lubricate the internal bearings on the pumps, and to lubricate the packing in the packing gland and also furnishes a cooling stream that goes through tubes in the thrust bearing lubricating oil reservoir and finally returns to the suction side of the pump. They are so piped that by reversing the inlet and outlet flow the strainer screen can be washed down and the dirt drawn off the bottom of the strainer without opening the strainer.

Hot Bearing Instruments

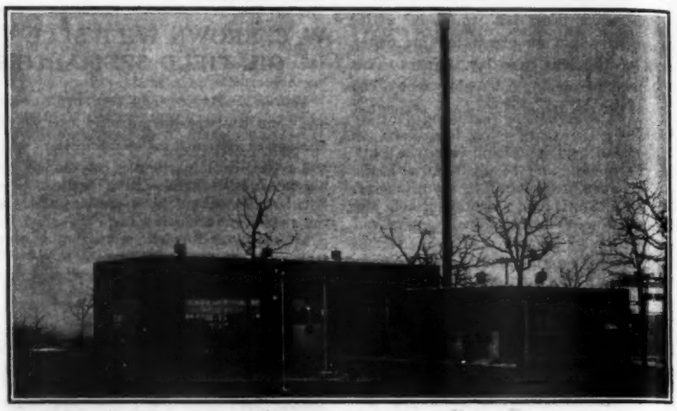
Special thermostat registering instruments that make contact with the electric system in the event of high temperatures are placed on all bearings, glands and thrust bearings and have proved reliable in operation. When any bearing unduly heats the electric current is shut off from the unit on which the hot bearing exists, shutting it down. It remains shut down until the trouble has been investigated and corrected and the reset button on the station board has been punched.

Sump Pit

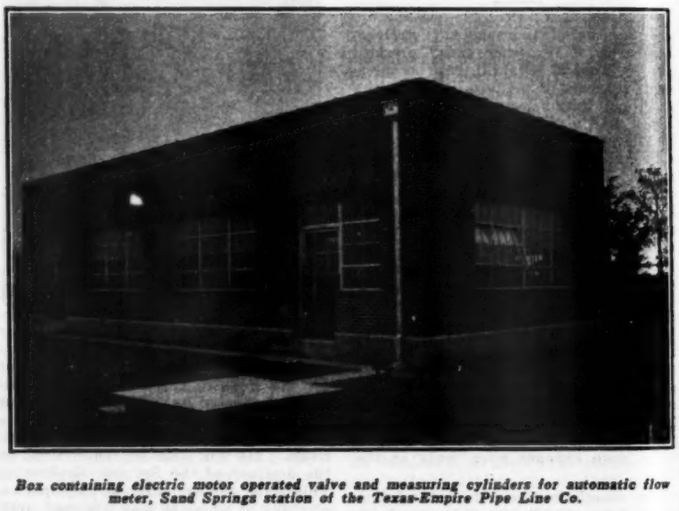
The sump pit is of ample depth and is equipped with two automatic floats. The shallow float starts and stops the sump pump, and should any leakage in the station be excessive so that the sump pump could not keep up with the leakage flow into the sump pit the higher float will operate when the fluid reaches the high level and shut down the entire station and notify the oil dispatcher of sump pit trouble. After the trouble has been investigated and corrected the reset button on the control board at the station must be punched before the station can be again started. Suction gate (1) automatically closes under this condition of shutdown.

Other automatic safety devices and indicators are provided to act in case of station overcurrent, motor field failure, low voltage, unbalanced phase, or fire within the station building. In case of fire the station will be completely shut down and the motor operated gate valve closed to prevent more oil from the line entering the station, and the main breaker will then be automatically tripped to sever the power connection.

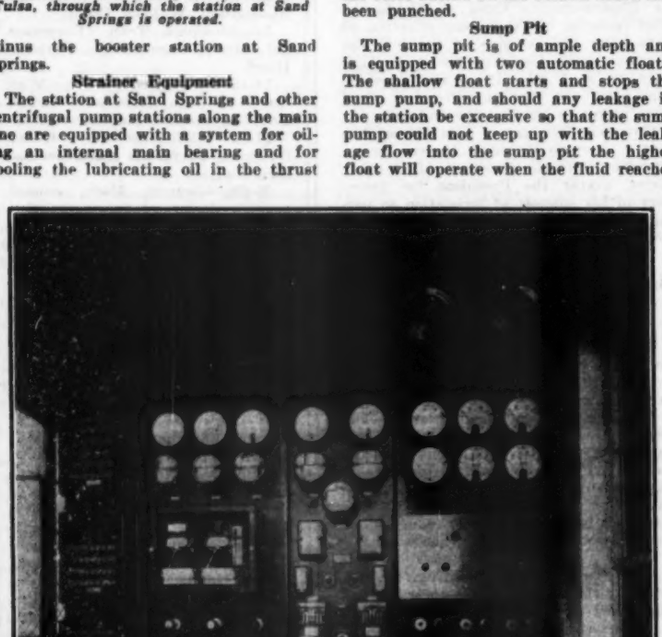
Before the remote control system was put into operation there were three eight-hour shifts at the Sand Springs station and this was continued during the early period of trying out this new equipment. Then only two shifts were used, with the station unattended between shift changes. Now the station has only one operator who lives at the station cottage and is available for duty at any time, day or night, as his services may be needed. An alarm system has



The Texas-Empire Pipe Line Co. main line pump station at Sand Springs, Okla., operated by remote control.



Box containing electric motor operated valve and measuring cylinders for automatic flow meter, Sand Springs station of the Texas-Empire Pipe Line Co.



Power panel with supervisory control equipment located in the Sand Springs station of the Texas-Empire Pipe Line Co.

Interior view of Texas-Empire Pipe Line Co. Sand Springs pump station showing electric motors.

been installed in the house and the bell will ring when there is trouble of any kind in the station.

On the whole the equipment has given good satisfaction and the changes made have been few and primarily to adapt larger units to the conditions set up under remote control operation rather than any radical change in design.

GASOLINE SITUATION IN FOREIGN MARKETS

(Continued from Page 19)

decline in United States shipments, is summarized as follows:

1. British imports during the first nine months of 1931 were 2,145,655 bbls. less than in the corresponding 1930 period, while recorded shipments from the United States were 4,764,678 bbls. less. Receipts from Rumania increased perceptibly.

2. French imports of gasoline during the first nine months of 1931 were 1,423,968 bbls., or 11.7 per cent greater than in the corresponding 1930 period, while receipts from the United States were 1,460,639 bbls. less. Substantial increases are recorded in receipts from Rumania, the U.S.S.R., and Persia.

3. German imports of gasoline during the first nine months of 1931 were 1,376,000 bbls. less than in the corresponding 1930 period, the bulk of this decline being in receipts from the United States, which were 1,105,000 bbls. less. Receipts from Rumania also declined, but receipts from the U.S.S.R. increased to an important degree while those from Persia increased slightly.

4. Gasoline shipments from Rumania during the first six months of 1931 were 50 per cent greater than in the corresponding 1930 period, while shipments from Constanta, the principal shipping port, increased 106 per cent.

5. Gasoline shipments from the U.S.S.R. during the first nine months of 1931 increased 16.8 per cent over the corresponding 1930 period.

6. Gasoline shipments from the islands of Aruba and Curacao in the Dutch West Indies during the first eight months of 1931 were virtually the same as in the corresponding 1930 period, but the decline of 1,620,000 bbls. in shipments to the United States was offset by a corresponding increase in shipments to other countries, principally European and South American.

Rumania Gains

With imports of gasoline totaling slightly more than 20,000,000 bbls. during the first nine months of 1931, the United Kingdom ranks first among the foreign motor fuel markets. During 1930, shipments from the United States supplied slightly more than half of the gasoline imported; during 1931, shipments from this country supplied slightly less than half. This results from the fact that, while total receipts declined about 10 per cent during 1931, receipts from the United States were some 25 per cent less than in the corresponding 1930 period. Increased receipts from Rumania, offsetting the decline in United States shipments to a large degree, overshadowed all other transfers in the sources of gasoline supply, although a marked decline in Persian receipts and a substantial increase in receipts from the Dutch West Indies also were of significant importance. Imports of Russian gasoline held at the levels of the previous year.

The segregation of gasoline imports into the United Kingdom, according to point of origin, is not available for the complete nine months' period but is available for comparable 32-week periods during 1930 and 1931.

GASOLINE IMPORTS INTO THE UNITED KINGDOM
(Covering comparable 32-week periods, 1930 and 1931)

	1930	1931	Difference
United States	10,326,466	7,744,269	—2,582,197
U.S.S.R. (Russia)	2,325,444	2,383,113	+ 57,669
Persia	2,838,460	1,443,063	—1,395,397
Dutch West Indies	624,879	1,184,876	+ 559,997
Rumania	1,005,189	2,359,862	+1,354,673
Dutch East Indies	1,357,735	1,463,787	+ 106,052
Mexico	378,000	270,170	— 107,830
Egypt	222,444	230,255	+ 7,811
Trinidad	.....	100,697	+ 100,697
Others	63,310	68,090	+ 4,780
Total	19,141,927	17,348,132	—1,893,746

France, second in standing among foreign gasoline importing countries, is outstanding in that it is the only country to record a significant increase in 1931 gasoline receipts, which totaled 13,643,000 bbls. during the first nine months of this year, 11.7 per cent greater than the 12,219,000 bbls. imported during the corresponding 1930 period. Despite this increase, receipts from the United States declined 1,461,000 bbls., or 21 per cent. From the comparability of the figures, it would appear that Rumanian gasoline supplanted that previously shipped from this country. Receipts from Persia increased by 921,000 bbls. which, coupled with a much smaller increase recorded for Germany, nearly equalled the decline previously mentioned in Persian gasoline shipments to the United Kingdom. Receipts of Russian gasoline increased by nearly 1,000,000 bbls., which would account for nearly two-thirds of the total increase in Russian gasoline shipments during the period. Gasoline from the Dutch West Indies amounted to less than half of the 1930 figure.

French Imports

A segregation of French gasoline imports during the first nine months of 1930 and 1931, by countries of origiu, is shown in the following table:

FRENCH GASOLINE IMPORTS
(Jan.-Sept., 1930-1931)

Source—	1930 bbls.	1931 bbls.	Difference bbls.
United States	7,043,058	5,582,419	—1,460,639
Persia	1,827,295	2,748,428	+ 921,133
U.S.S.R. (Russia)	1,458,406	2,455,226	+ 996,820
Rumania	590,593	1,937,414	+1,346,821
Dutch West Indies	749,510	331,948	— 417,562
Others	550,067	587,462	+ 37,395
Total	12,218,929	13,642,897	+1,423,968

Germany, ranking next to France in the Continental gasoline markets, recorded a decrease of 13.6 per cent in receipts during the first nine months of this year over those of the same 1930 period. The trend in receipts of gasoline from the United States followed that mentioned for the United Kingdom and France, being 22 per cent less than the 1930 totals.

While the United States' share in the German gasoline market dropped from the 1930 ratio of 49 per cent to 44 per cent in 1931, that of the U.S.S.R. increased from 12 to 19 per cent, the outstanding characteristic of the German market being the increase of nearly 450,000 bbls. in receipts of Russian gasoline. Imports of gasoline into Germany during the first nine months of 1930 and 1931 are segregated according to country of origin in the following table:

GERMAN GASOLINE IMPORTS
(Jan.-Sept., 1930-1931)

Source—	1930 bbls.	1931 bbls.	Difference bbls.
United States	4,994,320	3,889,438	—1,104,882
Rumania	1,332,069	1,006,995	— 325,074
U.S.S.R. (Russia)	1,197,012	1,646,493	+ 449,481
Persia	753,142	841,738	+ 88,596
Peru	477,581	395,709	— 81,872
Others	1,384,036	981,036	— 403,000
Total	10,138,160	8,761,409	—1,376,751

Turning from the European Continent to Argentina, a principal South American market for gasoline, it is noted that gasoline imports during the first six months were 6 per cent below those of the corresponding semester of 1930, but that the United States' share in the Argentine gasoline market dropped from 84 per cent in 1930 to 23 per cent in 1931. The decrease in receipts from the United States was offset by increased shipments from Mexico and the Dutch West Indies. California particularly felt the decline in shipments to the Argentine.

ARGENTINE GASOLINE IMPORTS
(First six months, 1930-1931)

Source—	1930 bbls.	1931 bbls.	Difference bbls.
United States	927,455	240,316	— 687,139
Mexico	168,534	415,102	+ 246,568
Dutch West Indies	.....	381,237	+ 371,237
U.S.S.R. (Russia)	3,667	.....	— 3,667
Others	2,956	245	— 2,711
Total	1,102,612	1,036,900	— 65,711

Canadian Imports

Canadian import statistics covering the first nine months of 1931 record the receipt of 2,016,000 bbls. of gasoline, a decline of 1,500,000 bbls., or 42.7 per cent, from the 3,517,000 bbls. imported during the 1930 period. Although the bulk of the imports were received from the United States, our portion of the imports dropped from 94 per cent in 1930 to 84 per cent in the 1931 period, shipments from the Dutch West Indies having increased sufficiently to account for the difference. The decline in Canadian imports undoubtedly represented a corresponding decrease in motor fuel demand, as there is no evidence of increased refinery operations to offset the drop in imports. The quantity of crude oil imported during the corresponding periods dropped from 22,315,000 bbls. in 1930 to 21,952,000 bbls. in 1931, a decrease of 363,000 bbls. Local crude oil production during the 1931 period, however, increased 263,410 bbls.

Having reviewed the foreign gasoline situation as it affects imports in certain of the principal markets, attention will now be directed towards certain of the principal foreign sources of supply.

Sources of Supply

Much of the recent transition in the sources of gasoline supply to the European market results from and is centered in the increased Rumanian production and shipments. Rumanian gasoline is shipped to virtually all of the European countries, but recent increases have been marked especially in France and the United Kingdom. Figures for the first six months of 1931 show an increase of 50 per cent over the first semester of 1930, shipments in 1931 amounting to 6,963,863 bbls., compared with 4,627,239 bbls. during the corresponding 1930 period. Shipments during the 1931 period exceeded those of the entire year in 1929 and the gain recorded during the first half of 1931 almost equalled the gain recorded for the whole of 1930 over 1929, when gasoline shipments increased nearly 40 per cent.

Gasoline exports from Constanta, the principal shipping port, increased from 2,868,070 bbls. during the first half of 1930 to 5,915,490 bbls. during the first half of 1931, a gain of 3,047,420 bbls., or 106 per cent. Movement of products by the Baicoi-Constanta pipe line increased 53 per cent and revenue to the state from pipe line operation was 39 per cent greater than anticipated in the state budget.

Domestic consumption in Rumania during the first half of 1931 was only slightly larger than during the first half of 1930, all of the marked increase in gasoline distribution being in foreign shipments. Coincident with the notable increase in gasoline trade was the increase in crude oil production, a gain of 18 per cent being recorded for the first nine months of this year, as compared with 1930. The district of Prahova registered a small increase, as the result of developments in Piscuri and Boldesti, but the principal gain was in the Dambovitza district, where the output of the Gura-Ocnitei Field nearly doubled.

Russian Shipments

Shipments of Russian gasoline from the U.S.S.R. increased from 9,246,300 bbls. during the first nine months of 1930 to 10,798,400 bbls. during the corresponding 1931 period, a gain of 1,552,100 bbls., or 16.7 per cent. Information is not available currently from Russian sources as to the destination of its gasoline exports, but it is evident, from the review of import statistics, that fully 65 per cent was shipped to the United Kingdom, France and Germany and that the 1931 increase of slightly more than 1,500,000 bbls. can be almost entirely accounted for in the shipments to these three countries—a 997,000-bbl. increase to France; a 450,000-bbl. increase to Germany; and a 58,000-bbl. increase to the United Kingdom.

During comparable periods, the share of the U.S.S.R. in the gasoline trade of Great Britain has increased from 12 per cent in 1930 to 14 per cent in 1931; for France, an increase from 12 to 18 per cent; and for Germany, from 12 to 19 per cent. It is evident from this comparison that the U.S.S.R. has made a consistent gain in its share of the three principal European gasoline markets.

From West Indies

Gasoline shipments from the Dutch West Indies during the first eight months of 1931 registered a small gain over 1930, an increase from 11,897,000 bbls. in 1930 to 11,982,000 bbls. in 1931. For practical purposes, the shipments during the two periods may be regarded as identical. The significant feature of the situation in the Dutch West Indies is the direct manner in which it exemplifies the statement, frequently made, that "oil once produced will find a market." Shipments of gasoline from the Dutch West Indies to the United States during the 1931 period were 1,620,000 bbls. less than in the 1930 period but this did not result in any decrease in total shipments from the islands. The gasoline which did not move to the United States went instead to Europe, South America and Australia, displacing in these foreign markets gasoline which otherwise undoubtedly would have been shipped from this country. The situation is presented in the following table, which compares eight months' shipments during 1930 and 1931, by destination:

GASOLINE SHIPMENTS FROM THE DUTCH WEST INDIES
(January-August, 1930-1931)

Destination—	1930 bbls.	1931 bbls.	Difference bbls.
United States	9,810,040	8,189,949	—1,620,091
Europe	1,808,433	2,679,876	+ 871,442
South America	197,034	905,457	+ 608,423
Canada	46,585	161,998	+ 115,413
Australia	.....	111,683	+ 111,683
West Africa	34,455	32,740	— 1,715
Total	11,896,547	11,981,703	+ 85,156

A decline of about 15 per cent was recorded in gasoline shipments from the Netherland East Indies during the first half of 1931, in comparison with the 1930 period. Shipments dropped from 6,016,620 bbls. to 5,115,520 bbls. and it appears that the decline affected principally the shipments to British Malaya. Data are not available regarding 1931

gasoline shipments from Persia but from the preceding review of important data it would appear that shipments were slightly less than in 1930, and that shipments which previously went to the United Kingdom have been transferred to France and Germany.

American Share Declining

In its April report, the committee of the Federal Oil Conservation Board stated that the United States is losing its relative position in the world gasoline market. This statement was based upon data recording gasoline exports from the 10 principal shipping countries extending from 1921 to 1930, which revealed that a peak was reached during 1924 when the United States shipped 72 per cent of the total gasoline exported by the 10 countries. For each succeeding year, a decrease was recorded until, in 1930, United States shipments equalled but 49 per cent of the total, despite the fact that in each year the United States shipped more gasoline than in preceding years. The present year, consequently, will be the first in which both a quantitative and relative decrease will be recorded. The marked decrease in shipments from the United States, taken in connection with the situation in other important shipping countries, indicates that the share of the United States during 1931 may fall below 40 per cent.

The decline in value has been more drastic than the quantitative decrease. Even those countries which have shown an increase in shipments or receipts, record a loss in value. France shows an 11.7 per cent increase in gallonage, but a 40.7 per cent loss in value. Rumania records a substantial increase in the exports of petroleum products, but a 30.6 per cent decrease in value. The unit value of British gasoline imports has declined 45 per cent and, for shipments from the United States, there was a decline of 37.5 per cent in unit value and a drop of 56.7 per cent in total value.

From Nearest Source

The conditions portrayed in the foregoing analysis indicate clearly that the United States has been losing ground in the foreign gasoline markets and that the loss, during recent months, has been centered in European and South American countries as the regions of most significance from the competitive viewpoint. Price undoubtedly has been a factor in these adjustments, but there also has been a definite development of a policy to serve markets from the nearest source. The actions of individual organizations in this regard are not revealed in the statistical data available, so that it would not be possible to measure, for instance, the extent to which marketing companies have changed from one to another of their own sources of supply or the extent to which the situation reflects solely the increased production of foreign countries. Undoubtedly, there is some of both.

The essential fact is that foreign production of gasoline has been increasing more than foreign demand and, consequently, a larger share of the foreign business is being supplied from foreign sources. It might be calculated from the data presented that, had the United States retained its 1930 share of the foreign gasoline trade, shipments from this country during the present year would have been from 5,000,000 to 7,000,000 bbls. larger than the 1931 figures recorded. This calculation, in other words, gives an indication of the extent to which gasoline from foreign sources has displaced United States gasoline in foreign markets. The remainder of the 1931 decline may be attributed to the decline in actual demand.

Foreign Expansion

It is to be expected that actual demand will recover to former levels and increases above such levels are an ultimate anticipation, but the extent to which an increased foreign demand will be reflected in United States shipments is problematical. The tendency towards increased foreign production is a stronger present factor than any immediate expectancy of increased demand. During the present period of lowered demand, foreign refining facilities undoubtedly will undergo some expansion and equipment at present running considerably below capacity may be operated at a higher rate. Increased sales efforts from competing sources also may become an item of importance in those regions which have been but little disturbed. Until such time, consequently, as foreign gasoline demand increases at a rate considerably in excess of the increasing ability of foreign refining centers to supply the needs, it is not to be expected that gasoline shipments from the United States will reach their former levels.

In the assembly of the foregoing statistical data, reference was made to the reports received in the Petroleum Section, Minerals Division, Bureau of Foreign and Domestic Commerce and to a number of foreign publications, particularly the Moniteur du Petrole Rumain of Bucharest, La Revue Petrolifere of Paris, the Petroleum Zeitschrift of Berlin, and the Boletin de Informaciones Petroliferas Yacimientos e Industries, of Buenos Aires.

FIELD MEN DISCUSS ECONOMIC PROBLEMS

(Continued from Page 20)

Mr. Stalcup, "where a series of three papers were read having to do with the several important phases of the problem, of getting away from the archaic rule of the 'survival of the fittest.'" He urged that everyone who had not read those papers do so at once and make a careful study of them. The papers referred to by W. P. Z. German, John R. Suman and J. Edgar Pew, were published in the November 12 issue of The Oil and Gas Journal.

Oil Industry Economics

Clarel B. Mapes, associate secretary of the Mid-Continent Oil and Gas Association, Tulsa, prepared a paper upon the subject of oil industry economics which was presented by R. F. MacArthur, of the Barnsdall Oil Co., because of Mr. Mapes' unavoidable absence from the meeting.

The afternoon session began with a paper prepared by Ernest Filley, district superintendent for The Texas Company, Tulsa, but presented by Harold N. Pardee of the same organization because of Mr. Filley's inability to be at the meeting. The paper was entitled "Some Problems of the Oil Industry," and was addressed primarily to those outside of the petroleum industry but measurably depending upon it for their business. One of the interesting statements made in the paper was:

"Some years ago an analysis was made of how money is spent in the production of oil and to whom it was paid. A brief discussion of this analysis will serve to bring home to you, your direct and indirect dependence on the petroleum industry for your prosperity. From the average dollar so spent, 48 cents goes for material and supplies. The many items making up this total come from supply stores, hardware stores, lumber yards, machine shops, garages and include a multitude of items of practically every character and come from every shop, store and supply house in your city. The money is used to pay sales people, warehousemen, machinists, mechanics, clerks and both skilled and unskilled labor and the money goes through your banks; part of this expenditure finds its way to the railroad, the factories and mills throughout the country and while it helps your city it also helps the country at large

"Of the same dollar, 36 cents goes directly to the payment of labor and payrolls, 4 cents goes to purchase transportation by team and truck; 8.4 cents in payment of taxes other than income tax; 3.6 cents for fuel and miscellaneous items . . ."

Mr. Filley then discussed the relation of taxes to the industry and especially the gasoline tax, which if too high places a burden upon the man who abides by the law and pays his taxes, because it increases the incentive for unscrupulous persons to "bootleg" gasoline and by so doing be in position to undersell the dealer who is honest.

One statement was made in the discussion of this paper that is very significant. It was, that during 1931 more money has been paid in the State of Oklahoma for taxes than for all labor and salaries combined. It hardly seems possible that the petroleum industry is paying more to those outside of its ranks than to its employes, but the facts indicate that this is the case and it does seem time that something definite should be done to change this condition.

Stabilizing the Oil Industry

Earl Oliver, Ponca City, Okla., presented another of his very able papers on stabilizing the oil industry. He likened the mad orgy of drilling that occurred during the early days of the Cushing development, which took place in the immediate vicinity of Drumright, to the mad rush for land when the old Cherokee Strip in Indian Territory was opened for settlement.

Such methods of distributing land have since been abandoned by the U. S. Government but the oil producer is still forced by antiquated laws to continue competitive drilling of his properties.

Mr. Oliver made a plea for consideration of the recommendations of the board of directors of the American Petroleum Institute at the Chicago meeting in November and stated that one of the first requisites for the industry as a whole is to put its own house in order and avoid this great waste of human and natural energy by competitive development of oil pools and as the people of this country realize that these efforts are progressing they will be inclined to look more favorably upon other measurs now before them for consideration that affect the oil industry's future also.

Oklahoma City Field Potentials

Colin C. Rae, petroleum engineer, Skelly Oil Co., Tulsa, was the next speaker on the Friday afternoon program and his subject was "Factors Influencing Well Potentials in the Oklahoma City Oil and Gas Field."

The November "four-hour test" in the Oklahoma City Pool indicated that the area has a daily potential of approximately 9,240,000 bbls. The field has been recently divided into four producing zones by order of the Oklahoma Corporation Commission to be known as the Fault, Arbuckle lime, Lower Simpson and Upper Simpson or Wilcox areas. The following tables gives the number of wells and their potentials with percentage of decrease since April:

Area—	(1)	(2)	(3)
Fault	4	9,234	....
Arbuckle lime	47	71,295	47.0
Lower Simpson	384	1,858,944	13.7
Upper Simp. (Wilcox)	257	7,100,502	14.2
Total	692	9,039,975	

Column 1—Number of wells with potential. Column 2—Potential production. Column 3—Per cent decrease since April, 3½ days' production.

About 40 additional wells may later report potentials of an estimated 200,000 bbls. The remaining 114 wells have been plugged back into upper sands as dry gas wells; are overproduced; gas wells, dead or not active for some reason. The total number of wells finished in the Oklahoma City Pool is 846 and 731 oil wells are still flowing.

Mr. Rae goes on to analyze the operating conditions in each of the four zones and states that the rapid encroachment of water in the Arbuckle lime has eliminated profitable oil production from most of the 116 wells originally completed in that area. About 60 of these wells have already been plugged back to the lower Simpson for gas or the upper dry gas sands. About 40 wells

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 89)

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices effective June 20 are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above, 66 cents.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt*	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	..	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

took the potential test but it is reported that only about 35 wells will pay to operate under the heavy expense of lifting and disposing of several thousands barrels of salt water daily. It is doubtful if over 1,000,000 bbls. of oil will be produced from this horizon in the future although several of the wells may have a long life.

Lower Simpson

Three pay strata produce in the Lower Simpson known as the School Land, Hammer Sand and Green shale. These are in addition to the more prolific sand members known as the Johnson sand, from which most of the oil has been produced in the past operations. "Water conditions in the lower Simpson became very serious during 1931," said Mr. Rae. "In the effort to secure all the pay zones and try to secure large volumes of gas for flowing the oil, many wells were drilled below the Johnson sand into the variable sandy dolomite, Stamper lime, and even into the Arbuckle. Water started showing in some such wells medium high on the structure while many wells much lower on structure and drilled through the sand have not yet shown water. Immediate plugging back jobs were done on many wells, but results of repeated jobs were rather discouraging. However, during the past six months, the water has not spread so rapidly, so perhaps some plugging jobs were successful, or the water is being handled as fast as it comes into the sand. About 80 wells are already affected by the water, and it may detract from the ultimate production of the lower Simpson sands.

"The Wilcox sand represents about 80 per cent of the potential production of the Oklahoma City Pool. It is an excellent sand with probable average porosity of 20 per cent and thickness ranging from a few feet on the high wells to over 200 feet reported in wells in the main part of the field. The average thickness will probably be 115 feet, and from Wilcox sand experience, it would not be abnormal to expect a yield of over 75,000 bbls. per acre. Only about 3 wells out of 290 completed are showing any water. The sand is probably only about 15 per cent depleted, and should contain over 200,000,000 bbls. of crude oil for future production."

K. C. Sclater, Tulsa, engineer, presented a paper on well spacing.

Saturday Morning Program

The citizens of Cushing, Okla., headed by Rex Wingate, of the Cushing Refining Co., prepared a banquet and smoker which was held at the Hotel Cushing and attended by over 250 persons. George H. Jennings, state senator, Sapulpa, and Frank Carruthers, Norvell and Wilder, Houston, Tex., made addresses. Thomas F. Smiley, of The Oil and Gas Journal, acted as toastmaster.

On Saturday morning C. V. Millikan, Amerada Petroleum Corp., Tulsa, and L. A. Cooke, Shell Petroleum Corp., Drumright, acted as chairmen, and Carl A. Young, executive secretary of the A.P.I. Division of Production, Dallas, presented the first paper and outlined the activities of the Institute and stressed particularly the importance of the resolution passed at the Chicago meeting relating to ownership of oil in place.

One of the most novel papers ever presented before any meeting of the Institute was next given by Ernie E. Bell, secretary of the Drumright chapter and the Mid-Continent district, when he gave his version of the duties of a motor transport department superintendent. Mr. Bell stated that because of his many duties connected with the preparing of details for the meeting he had not had time to write a paper so he would take his audience with him to his office for a series of imaginary interviews common to his day's work.

He then sat down at a table upon which a telephone rested and almost immediately the telephone bell rang and a land department man was on the wire telling Mr. Bell about a new location where a well was to be started and asking his advice about how to get there and a lot of other things. Following this in rapid order the production superintendent, truck drivers, field men, automobile salesmen and others called Mr. Bell on the telephone and the one-sided conversations were carried on much to the amusement of the audience.

R. R. Hawkins, The Texas Company, Tulsa, was next on the morning program and abstracted his paper on "Flowing of Small Wells Through Strings of Tapered Tubing," which was published in The Oil and Gas Journal of October 8. This abstract was discussed at some length and many important additional points brought out.

L. A. Cooke, district superintendent for the Shell Petroleum Corp., Drumright, Okla., read a short paper on cleaning wells and outlined the purpose and uses for winches, mounted on tractors and trucks; bullwheels, and other equipment. Mr. Cooke maintained that conditions at all wells were not the same and therefore the particular type of equipment used should be chosen to suit the district and leases where it was to be used. Economy of operation should be one of the main determining factors.

High Pressure Connections

Reid W. Bond and Wallace H. Collins, both petroleum engineers with the Shell Petroleum Corp., Tulsa, prepared a paper describing a few of the various high pressure connections and hook-ups employed in the deeper fields in Oklahoma. In the opening paragraphs they state:

"The surface connections of wells producing from around 6,500 feet are subject to pressures up to 2,300 pounds per square inch when closed in. When these wells are flowing the connections are subject to severe cutting due to sand being carried at extremely high velocities. Most failures are due to the cutting action rather than high pressure alone.

"Some wells in the Oklahoma City Field have produced at a rate as high as 70,000 bbls. per day with as much as 150,000,000 feet of gas through 7-inch casing, and even larger amounts when the oil string was 9-inch casing. With 150 pounds pressure at the master gate, this rate would require a velocity of over 450 miles per hour at the top of the 7-inch casing. When sand is carried at this or at an even more moderate rate, it is no wonder that connections are continually cutting out. Some wells produce little or no sand, whereas others have produced sand at an estimated rate of 20,000 bbls. per day."

A number of lantern slides were shown to illustrate various types of connections and Mr. Collins, who presented the paper, described each in some detail and explained their purposes and reasons for the particular design.

In conclusion the paper states, "The number of wild wells and failures in high pressure fittings has been reduced because of a more careful study of all problems involved, especially that of sand cutting. The tendency has been toward simpler hook-ups with a greater factor of safety. Further progress along these lines will result in reducing underground and economic waste."

L. B. Holland, superintendent in the Oklahoma City Field for Phillips Petroleum Co., Bartlesville, Okla., discussed the paper and exhibited several collars and parts of fittings taken from wells that made as much as 1,035 bbls. of sand in 95 minutes' flow. These parts looked like "a block of ice upon which a blow torch had been turned," to quote Mr. Holland and it was evident to everyone that something had happened to destroy the original surfaces of the metal, some of it special hardened steel.

Mr. Holland stated that their investigations had proven that so long as the well's production consisting of oil, gas and sand, had stream line flow no cutting resulted. This was proven by careful examination of wells that had been temporarily killed for repairs. The upper joint of casing showed only a portion of the original mill scale removed from the inside at its upper end and extending down with gradually diminishing effect of scouring to about 15 feet where the original mill scale was intact. This portion of the casing and that below it carried the flow of the well without setting up turbulent flow conditions.

When the oil, gas and sand stream is diverted, or any obstruction placed in its path that creates turbulent flow, cutting will start and rapidly destroy the metal, regardless of its hardness or other characteristics. It has been found that tiny depressions or high points on the surface of the metal will divert a small portion of the stream from its path and set up turbulent flow, even over a very small area, but in a few minutes the cutting action will be perceptible and the whole part soon made unfit for further use.

Engineers are now trying to take advantage of this known condition and cause the sand to cut the metal only where it will not affect its usefulness, for it seems quite impossible to find any metal that will long withstand the cutting action of this high velocity sand under turbulent flow, but if the cutting can be directed it can be made to work with, rather than against the purpose of the equipment of which it forms a part and in this way add materially to its life.

Election of Officers

Before the meeting adjourned C. V. Millikan, chairman for the nominating committee, announced that David Trax, of the Gypsy Oil Co., had been nominated for chairman for the new year; Ernie L. Bell, Deep Rock Oil Corp., Drumright, and Lawrence A. Ogden, Empire Companies, Bartlesville, Okla., vice chairmen; and Wallace H. Collins, Shell Petroleum Corp., secretary. R. F. MacArthur, general manager of the Barnsdall company, Tulsa, was nominated for chairman of the advisory committee. All nominees were elected by unanimous vote and the additional members of the advisory committee will be selected by Mr. MacArthur and the executive committee soon.

DEATH OF DAVID HOGAN

David Hogan, 86 years old, retired oil producer and for many years a drilling contractor in the eastern fields, died suddenly in Olean, N. Y., on December 10. Mr. Hogan was a native of Ireland, but came to the United States when a boy and settled in western New York. He was one of the first to reach Bradford after the opening of the oil field there in 1875 and became widely known as a drilling contractor.

THOMAS W. MASON DEAD

Thomas W. Mason died in Lima, Okla., on December 6, of cerebral hemorrhage. Mr. Mason was chief station engineer for the Texas-Empire Pipe Line Co. at Lima, and previously had been in the employ of the Texas, Sinclair, Prairie and Texas pipe line companies. Mr. Mason had been in the Mid-Continent fields for many years and was well known in pipe line circles.

KISTLER HEADS REITER-FOSTER

Frank E. Kistler of Denver, Colo., founder of the Producers & Refiners Corp., has been elected president of the Reiter-Foster Oil Corp., succeeding Paul S. Ache of Tulsa, who resigned last week to devote his time to personal oil interests in the Mid-Continent area. Mr. Kistler formerly was chairman of the board of the Reiter-Foster corporation. H. A. Thompson, vice president of the company, resigned with Mr. Ache.

WATCHING TEST OF WELDED HIGH PRESSURE VESSELS

A portion of the crowd at the Flexweld demonstration conducted under the auspices of Black, Sivalls & Bryson, Inc., Bartlesville, Okla., at its Tulsa branch, December 10.

PRESENT METHODS ENCOURAGE WASTE

(Continued from Page 21)

styled, existed within the limits of the region covered by this pool.

Today this excellent little city in which we are meeting and its environs, with its schools and churches, its sanitation, its civic pride, its comfortable homes, its good roads, its law and order —is a good place in which to live and develop good citizens out of the boys and girls that are growing up here, or to preserve character and health in the men and women who live here.

Compare with this pleasant picture the Drumright and Oilton of 16 years ago. At this time, when these towns are capable of developing and preserving human character, they have only 40 per cent of the population they then had. Like all oil towns built on the competitive type of oil field development, they face a steady decline in population at a time when they are best prepared to serve a growing population.

Communities built to serve the temporary population of a major oil field excitement during its flush period are, during that period, not conducive to the development of good citizenship. The scum and dregs of the human race that drifted in, or were developed here under the conditions then existing, have scattered to other new discoveries to rob banks, to peddle booze and drugs, to spread diseases in houses of prostitution, and to lower generally the condition of society in this great land. Drumright and Oilton, as many of us recall them in those early days, are but repetitions of every other oil field town built up to serve the transient population of a competitive drainage area.

Not an Attractive Picture

It is not an attractive picture we describe. We prefer recalling the romance and the spectacular features from the past; but the thoughtful person who considers the welfare of his fellow men cannot but consider the permanent influence left on society by each repetition of the rush and excitement of a new major discovery developed under the conditions described, and to hope that some method of developing oil pools will be evolved whereby men will master the oil pool instead of being mastered by it; whereby each new discovery can be hailed as a boon to society rather than the misfortune it now is, both economically and spiritually. We look forward to the day when the activity of an oil pool and the oil and gas produced from it will start on a small scale and gradually increase in quantity over the succeeding years as the need for its products is developed and its ability to take care of its human population is enlarged; when manufacturing plants are constructed in its vicinity to use the raw products and consume its cheap fuels, instead of the present experience of having them start large and gradually decline over the years.

Much of this waste of human beings, of human effort, and physical products is due to the necessity of speedy extraction induced by the method of determining ownership to oil and gas devised by the Pennsylvania court. Where that influence can be neutralized this extensive waste, both of human beings and physical products is greatly reduced if not eliminated. Compare Van Pool with East Texas; Yates Pool with Oklahoma City; Sugarland with Spindletop; Kettleman Hills with Seal Beach—but these favorable comparisons were made possible only by virtue of unusually favorable conditions to promote voluntary co-operation.

As stated, the chief underlying cause of this destruction both of human values and of physical products is the legal principle defining ownership to oil and gas. Students of the problem know how that standard came about. They also know how it can be corrected to eliminate the results described. It is proposed to substitute a new method for the old one of determining each landowner's share of oil and gas in the common pool. The change is simple, but since government defines and fixes legal rights, government alone can make this change. Messrs. Carl Young and H. M. Stalcup of the production division of American Petroleum Institute promoted a program at the recent Chicago meeting of the institute in which the details of this proposed change were summarized under the title of "The New Conception of Oil Field Development." Messrs. J. Edgar Pew, John R. Suman and W. P. Z. German presented, respectively, the executive, engineering and legal viewpoints. We urge a widespread study of their able and comprehensive papers.

The New Conception

It is proposed to limit the amount of oil and gas any one landowner may take out of a common pool to a quantity that represents the extractable oil and gas in his own land. It is also proposed that he be required to confine his methods of extraction to those which will not unduly dissipate reservoir energy upon which all owners depend. These proposals mean nothing more nor less than applying to the oil industry an old established legal principle that has determined the behavior of human beings in civilized society from the earliest periods of human history, namely, that each owner shall not so utilize his property as to injure his neighbor.

Lawyers advise that the state has authority to substitute the new standard we have described for the old provided engineers can devise practical ways and means of determining the relative quantities of extractable oil in each owner's land, not with mathematical accuracy but with reasonable justice to all parties. Engineers claim these principles can be applied either in competitive drainage and proration through the regulation of well spacing and back pressure, or in unit operation by means hereafter described. The latter method would, of course, be much more efficient and less complicated.

Efficient and complete extraction depends upon maintenance and utilization of that reservoir pressure. If the contents of the reservoir are permitted to escape only through holes drilled into the oil-filled part of the reservoir, thereby lowering pressure at that point alone, then the expanding gas, the encroaching water, and any other force or forces that tend to maintain pressure drive the oil and dissolved gas through that hole or holes to the surface at a minimum cost and with least loss of either oil or pressure.

If, however, the contents of the reservoir be extracted through holes drilled into the free gas area, the pressure is dissipated without moving oil. Not only is much of the oil then left in the sand without force available to move it toward the well, provided water encroachment is slow, but the loss of dissolved gas renders the oil viscous and difficult to move. Much of the oil is also soaked up into the free gas area and held there; so that in many cases under present methods 50 to 90 per cent of the reservoir oil content is lost to recovery. The practice under competitive drainage has been to permit gas to escape in the hope that oil will follow. Thus instead of utilizing gas to drive oil out of the reservoir, many operators attempt to have gas lead the oil out. While there is an affinity between them, satisfactory results are not achieved in that manner.

Utilizing Energy

The ideal method, therefore, is to take out the oil and gas only through wells drilled into the oil-filled area and to utilize the wells drilled into the free gas area only as channels through which to force gas or air into the reservoir to maintain the pressure.

Since the scientific and economic advantages of the proposed method are well known, it would be adopted rapidly through voluntary co-operation except for the fact that the present legal standard of determining ownership to oil and gas does not lend itself readily to this type of ideal operation.

Under the proposed new standard of determining relative rights, the next development step after discovery would be to drill a series of exploratory tests extending out from the discovery well so as to define the limits of the pool, the thickness of the sand, its porosity, productivity, etc. On the information so secured not only would apportionments be made but points of extraction could be determined under which most efficient utilization of reservoir energy would occur. The cost of such exploratory development would be assessed against the reservoir content and only such landowners as are shown by this exploration to have oil or gas under their lands would share in the output, and that in proportion as their lands were found to be productive. Revisions and corrections would, or could be made from time to time as later development suggestion revision is necessary for equitable apportionment.

The rules and regulations governing the development of this pool would be determined by the will of the majority in harmony with the well established practices of democracy, but the minority owner would be protected against injustice by right of appeal either to designated boards or to courts. Each landowner's proportion of the reservoir content would be determined on the above principles and his oil and/or gas would be delivered to him by an organization of which he is an integral part in the proportions to which he is entitled, and at the time and in quantities (consistent with the capacity of the facilities) in line with his desires. Arrangements for ready sale of oil and gas yet in the reservoir would be perfected whereby those

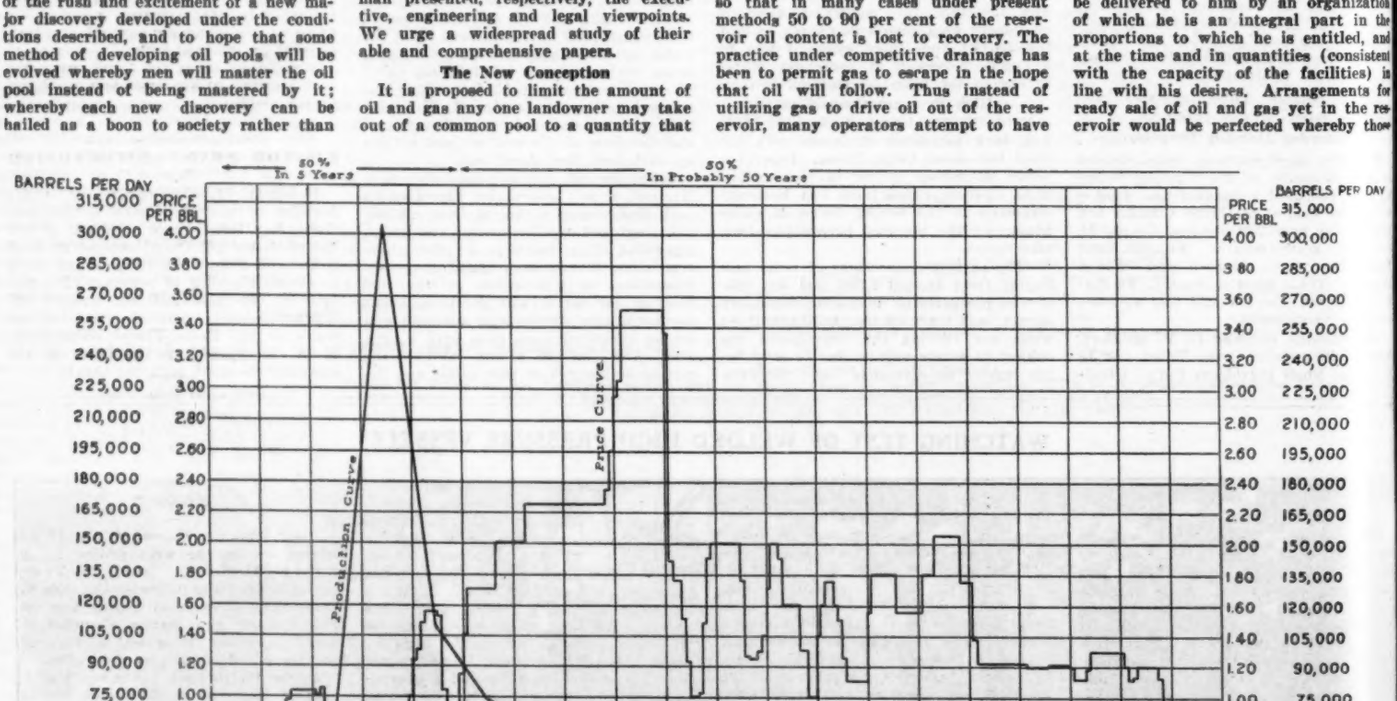


Chart showing Cushing production and crude oil prices.

who wished to dispose of their share of oil and gas without bringing them to the surface at a time when the markets could not absorb same could do so.

Conserving Production

Under this proposed system the reservoir content should be extracted only as rapidly as the owner finds a satisfactory market for his product. Individual deliveries within proper safeguards could be adjusted to the desires of each owner. Thus not only would efficient extraction result but the law of supply and demand would operate. This method not only would reduce costs but it would increase extraction. It would benefit the operator, the royalty owner and the consuming public since part of the saving affected would inevitably be passed on to the consumer. It would benefit the oil field worker in that it would promote steady employment under favorable living conditions. It would benefit the community in that it would supply fuel and raw material for affiliated industries. It would help to stabilize business. It would benefit the state in supplying a constant and permanent source of taxable income instead of the highly fluctuating one under present conditions. It would develop for the state a better type of citizenship. Thus the benefits arising out of its general adoption are not to be measured alone in dollars and cents but in human values as well.

That the United States oil industry must adopt more efficient methods of development and operation so that costs may be reduced and also that production will become more readily adjusted to demand is apparent from a study of map "A." From the beginning of the industry the United States oil fields have produced approximately two-thirds of the world's output of oil and sent American oil into all quarters of the globe. Under this intensive production system, low cost United States oils are becoming exhausted. Oil from these fields has several competitive handicaps, namely, it comes from old wells with high production costs; from deep wells with high production costs; and is produced under highly expensive, wasteful development and production methods.

Within recent years intensive search has been made for oil reserves in foreign lands and it is now discovered that although the United States is still producing nearly two-thirds of the world's oil production, yet that oil reserves outside of the United States are thought to be several times as great as those within the United States. Thus the latter are being exhausted six to ten times as rapidly as foreign reserves; also much of these foreign reserves are shallow and inexpensive to develop. Great quantities are likewise favorably located to water transportation, but above all these advantages much of them are compactly held so that the wasteful competitive drainage characteristic of United States oil fields that proves so expensive is absent. These several advantages enable the operator in many foreign felds to produce and sell oil throughout the world at prices below that with which the United States operator can successfully compete. As a consequence some of the more important markets formerly using American oils are being rapidly taken by these foreign oils.

Foreign Developments

It is obvious from a study of this condition that the United States oil industry cannot survive in competition with foreign production unless there is a radical change in its methods of wasteful development and operation. Not only is this vital to the owner of oil wells but it is important to every oil field worker. If the oil company cannot produce oil at a profit it is clear the men and women employed in the oil industry must suffer in proportion through loss of employment and lowered income.

Much effort is now being made to secure a tariff on importation from foreign fields. Sympathetic as all of us are to a proper use of the tariff to help stabilize the oil industry, we believe progress can be made in that effort even more rapidly if we frankly face the fact that the consumer is not likely to consent to a tariff so long as the oil industry fails to do everything it can to reduce costs. Restricting output alone has little merit. Proration is necessary to prevent chaos, but the principle on which it is generally being practiced that fosters drilling more wells with constantly lowered output for each well does not reduce costs. It increases them. So long as there are known methods by which the United States operator, collectively, can reduce costs and fails to do so we believe the consuming public will not look with favor on accepting a tariff. The exponents of tariff, then, cannot do anything that will more effectively promote a favorable tariff sentiment than to secure the adoption of cost reducing, waste eliminating methods. When the voting public is convinced the oil industry is doing all it can to help itself we believe there will be a growing disposition on the part of the voter to help it.

These changes in legal conception that are necessary to eliminate waste and lower costs can come about only through legislation, and the enactment of legislation to that end is impossible without a widespread public understanding of the benefits to the consuming public, the royalty owner, the landowner, the oil field worker, the state, and society itself that will result from the adoption of such change. It is, therefore, incumbent upon all those who are thus interested to spread the understanding among their acquaintances so that the day of the general adoption of the new conception of oil field development shall be speeded up.

DISCUSS PHASES OF VAPOR-LOCK PROBLEM

(Continued from Page 85)

ure 1 and a satisfactory starting curve on the same co-ordinates leave an area between the two in which the performance is wholly satisfactory. By "satisfactory" starting I mean something better than the "easy" starting figure used in some of the previous papers from the Bureau of Standards. The easy starting figures are based on a start within 10 to 11 revolutions, but the public would criticise a gasoline severely if that were the best it could do. Drivers generally insist on starting within one to two revolutions. To be conservative, the following figures have been based on four revolutions as satisfactory starting.

If we select at random from the Weather Bureau data those for Pittsburgh for the month of April, 1931, computation shows that the optimum gasoline for Doctor Bridgeman's worst car, considering both starting and vapor lock, would have a Reid vapor pressure of 6½ pounds. Such a gasoline would start the engine satisfactorily at 38° F. and would vapor-lock in this car at an atmospheric temperature of 65° F. The Weather Bureau data show, however, that in Pittsburgh in this one month there were 14 days in which the temperature fell below 38° and 12 days in which it rose above 65° F., in the shade. Making the obviously ridiculous assumption that the gasoline refiner could know in advance the temperatures that would be encountered during each month and that he could change his gasoline each month to fit these conditions, it would still be impossible for him to sell a gasoline that would not be open to complaint as regards starting or vapor lock or both. On the other hand, if all cars were even as good as Doctor Bridgeman's best car, and we have no reason to believe that that is the best that can be done, a gasoline could have been supplied for the month which would have given satisfactory starting and vapor-lock performance on every day in the month and left considerable margin for more unusual days. With information such as Doctor Bridgeman has presented, the time is at hand when the burden of vapor-lock complaints will be shifted from the gasoline to the car and when the prospective automobile purchaser will ask the automobile dealer the question, "Does your car vapor-lock?"

KEROSENE PRICES IN OKLAHOMA ADVANCE

(Continued from Page 16)

reduction in kerosene stocks over the past year has been in the East Coast and Gulf Coast areas with little change in the Mid-Continent and other interior points except Pennsylvania where stocks on November 1 were practically double those on the same date last year.

The foregoing data indicate the current statistical situation of kerosene is strong and under normal conditions continued substantial improvement in prices would be expected. With the generally depressed situation in the oil business and the refining branch in particular, no runaway market is to be expected and so far as the Mid-Continent is concerned refiners will be fortunate in maintaining present quotations until such time as there is a general upward trend in gasoline and other refinery products.

Market observers point out that the production of kerosene can easily be increased if prices get out of line in relation to other refinery products. One of the reasons for the decline in the domestic demand over the past two years has been due to the fact that a large number of refiners are manufacturing special grades of tractor fuels which are sold to the consumer under the kerosene prices. If prices justify, the average refiner can increase his kerosene by finishing up a part of this tractor fuel cut into kerosene or by using some of the heavier ends of his gasoline fraction. A few refiners are reforming a part or all of their kerosene cut into high octane rating gasoline. However, the profitableness of this operation is entirely dependent on the relationship between kerosene and gasoline, and with present tank car quotations for the two products near a parity, no extension of this method of limiting the kerosene output is to be expected at this time.

Gasoline and Naphtha

The gasoline tank car market over the past week was about as demoralized as it has been any time this year. Some of the sellers thought that less distress material was being offered on Monday and Tuesday, but this optimistic viewpoint was far from unanimous.

U. S. Motor gasoline of low octane rating was freely available the first of the week at a low of 2¾ cents for prompt shipment. Prices ranged up to 3¾ cents a gallon. Many refiners are not attempting to participate in spot business and have not reduced their quotations. The U. S. Motor gasoline was available for resale under the 2¾-cent level. Sales were made as low as 2⅝ cents, basis Group 3, and one refiner was reported to have sold over a quarter million gallons for 30-day delivery at 2¼ cents.

It is apparent that part of these low priced sales represent forced liquidation and also the expectation that posted crude oil prices will be reduced after the first of the year, if not before. When it is considered that these refiners who are selling at these low prices are losing from 20 to 40 cents a barrel there can be no other explanation of their action. It is known, in regard to liquidation, that several companies are hard pressed to meet current demands covering crude oil purchases and other year-end requirements which if not met may result in plant shutdowns of a permanent nature.

The higher gravity and low endpoint gasolines were as weak as the U. S. Motor grade. The 60-62, 400 endpoint was usually quoted at a low of 3 cents but sales were made as low as 2⅝ cents for resale. The 375 endpoint domestic aviation was quoted at a low of 3¼ cents and 350 and 360 endpoints, 3½ cents. Few refiners were willing to sell at these low prices but the quotations covered actual sales to the trade to the first of the week. There is fair demand for blending naphthas with endpoints varying from 437 to 480. Prices were reduced along with the regular grades of gasoline.

Natural Gasoline

Buying has been more active in natural gasolines. One large Oklahoma manufacturer sold a cargo of over 400 cars and purchased part of the gasoline from other manufacturers. Another marketer with terminal facilities at the Gulf Coast has purchased around 700 cars for shipment by the end of the week. There have been a number of smaller purchases.

This buying stiffened the market, particularly in inland Texas where prices for Grade AA are the same as in Oklahoma following a period of several weeks in which the Texas prices were from one-eighth to one-fourth cent lower. Grade AA was firm at 2⅝ cents in Texas the first of the week. The same price range was being maintained in Oklahoma with little buying. Grade A is scarce in both areas at prices one-fourth to one-half cent above Grade AA. The other grades are moving slowly, Grades BB and C being offered as low as 2⅛ cents. Opinions are divided as to the probable trend over the remainder of the month. Some of the manufacturers are confident that the low prices will attract additional buying while others fear that purchases will be slower over the remainder of the year.

Fuels

There have been sufficient reductions in fuel oil prices to bring about a general lowering of quotations in several grades. The low to medium cold test grades of low gravity fuels continue unchanged with a price range of 22½ to 27½ cents for below 18 gravity. There continues to be a fair demand for gravities between 26 and 30 at prices which vary from 40 to 50 cents per barrel. The high cold test grades are available and sales were reported as low as 16 cents for 22 gravity material.

High cold test gas oils have been sold at a low of 1¼ cents. The usual price for U.G.I. in Oklahoma continues at 1⅜ cents.

Sellers point to the strength in kerosene as indicating continued strength in the regular grades of furnace oil. Price ranges on all grades of furnace oil are unchanged.

Kerosene

The strength in kerosene was previously explained. The principal grade, 41-43 water white, advanced from a low of 2⅛ cents to 2¼ cents the first of the week. Several refiners quoting 2¼ cents advanced to 2⅜ cents and a few companies may increase to 2½ cents before the end of the week.

Lubricants

The recent reductions in neutral oil and bright stocks at Mid-Continent refineries has not stimulated the demand. The reductions were made to meet prices already well established by competitive refining areas. In the case of bright stocks, it is believed that additional price reductions will be necessary to meet the lower price trend at Gulf Coast and eastern points. Prices for wax are unchanged.

Late Fields

(Continued from Page 28)

Hills, and present production is therefore comparable to that secured in the Elliott high-pressure gas zone in the North Dome.

KANSAS

Field work in Kansas gained 17 new operations for the week ending December 12. McPherson County leads with seven, Sedgwick and Cowley Counties had three each, Greenwood County had two, and Russell and Barton Counties one each. Locations for several wildcat tests were included in the new operations.

In the Welch Pool, in the southeastern part of Rice County, J. Rogers and others' No. 2 in Section 3-21-6w, flowed 56 bbls. of oil an hour from the chat at 3,378-84 feet. The well is estimated to be a 1,300-bbl. well.

Williams & Moore's No. 1 Stratman, in Section 23-16-10w, a wildcat test in Ellsworth County, was drilling at 2,435 feet.

L. E. Cress and others' No. 1 Sharpe, SE cor. NE Section 13-20-10w, a wildcat in Rice County, was drilled deeper and

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the hole filled with oil. The pay horizon was found at 3,218-42 feet. A production test will be made of the well.

The Texas Company and others' No. 1 Holt, C NW SE Section 13-19-2w, McPherson County, made 1,612 bbls. of oil in 24 hours from the Viola lime at 3,400-09 feet. The well extends the Viola lime production more than a mile to the north on the west side of the Ritz-Canton Pool.

Rosenthal, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 in Section 11-24-13w, a wildcat in Stafford County, found a showing of oil estimated at 75 bbls. a day at 3,748-52 feet, and was drilling deeper. The only producing well in the county is Mid-West Exploration Co.'s No. 1 Richardson, in Section 36-22-12w, which had an initial potential of 1,680 bbls. a day.

In the vicinity of the Hilligoss and others' No. 1 Isern, in Section 12-20-11w, Barton County, Mid-West Exploration Co.'s No. 1, in the NW cor. SE Section 12-20-11w, is a location. Derby Oil Co.'s No. 1 in the NW cor. NE SE Section 12-20-11w, a direct south offset to Hilligoss and others' discovery well, is spudding.

A new well was completed and two others, all in the north end of the Eastborough Pool, Sedgwick County, were being given swabbing tests. National Refining Co.'s No. 1 Murdock, SW cor. SE SE Section 18-27-2, was swabbing at the rate of 1,500 bbls. a day, or around 62 bbls. of oil an hour from the pay at 3,240-52 feet. Roy Ramsey's No. 1 Davies, a twin in the SW cor. Section 17-27-2, was making 45 bbls. of oil an hour from the pay horizon at 3,228-34 feet. E. B. Shawver and others' No. 1 Soukup, in NE of Section 19-27-2, pumped 465 bbls. of oil in 19 hours from the deep pay horizon. Magnolia Petroleum Co.'s No. 2 Wheeler, in Section 17-27-2, found the top of the deep pay at 3,216 feet, where a showing of oil was found.

JOHN H. MARKHAM, SR., OIL PIONEER, IS DEAD

John H. Markham, Sr., of Wichita, Kans., and Bradford, Pa., died in the latter city Friday, December 11, after an extended illness. He was in his eighty-sixth year.

Mr. Markham was nationally known in the oil business. He was born in the County Clare, Ireland, in 1845, but came to this country when a boy. His entrance into the oil country was made in 1864 when he went to work on Oil Creek and the Allegany River, Pennsylvania, loading boats with oil in barrels, the primitive way of shipping crude petroleum. He next went to work as a tool dresser, became a driller and then a drilling contractor, and thereafter until recent years he drilled wells in nearly every state east of the Rockies in which oil has been found.

Mr. Markham's companionable disposition made him well acquainted and on friendly terms with many of the important operators of the first 50 years of the oil industry. While most of his time was given to his business of contractual drilling, he operated for himself successfully in the Robinson Field of Illinois and in the Marion County Field in Kansas and the last years of his life were spent as a producer. During the heyday of development in the Cushing Field in 1914-15 he ran 14 strings of drilling tools in that field alone.

Mr. Markham's three sons, John H. Markham, Jr., Robert E. Markham and Walter S. Markham, all of Tulsa, followed their father's footsteps and entered the oil business. Also surviving are six daughters, Mrs. Mabelle Simpson of Tulsa; Mrs. Winifred Washabaugh of Wichita; Miss Frances of New York and Misses Lillian, Jane and Camille, of Bradford.

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TANK WAGON CHANGES

(Continued from Page 90)

October 20 reduced kerosene tank wagon price at Wichita, Kans., from 7.8 to 6 cents. Company effective December 3 reduced gasoline service station price at Des Moines, Iowa, from 14.4 cents to 12.9 cents. Company, effective December 5 reduced gasoline service station price from 15.9 to 14.6 cents at Saginaw, Mich. Company during the past week has made reductions at several points in its third grade gasoline. These reductions which were confined to the service station prices included 1.00 cents a gallon in St. Louis, 3.01 cents in Davenport, Moline and Rock Island and 2.01 cents in Cedar Rapids. The company also reduced the price of third grade gasoline at service stations in Detroit by 1.04 cents.

Standard Oil Co. of Louisiana effective December 9 reduced the tank wagon price for kerosene 1 cent at Chattanooga, Tenn.

Standard Oil Co. of Kentucky announces the following reductions: Tampa, Fla., effective December 2, Crown gasoline service station market reduced from 21 cents to 20 cents per gallon; Montgomery, Ala., effective December 4, Crown gasoline tank wagon and service station market reduced from 21 cents to 20½ cents; Kyso Green gasoline, from 19½ cents to 19 cents per gallon; Pensacola, Fla., effective December 5, Crown gasoline tank wagon market reduced from 21 cents to 20 cents per gallon; service station market from 22 cents to 20 cents per gallon; Birmingham, Ala., effective December 7, tank wagon and service station market, Crown gasoline, advanced from 18 cents to 19 cents per gallon; Kyso Green gasoline tank wagon and service station market advanced from 16½ cents to 17½ cents per gallon; Jackson, Miss., effective December 8, Kyso Green gasoline tank wagon and service station market reduced from 16½ cents to 15 cents per gallon; Paducah, Ky., effective December 9, Crown gasoline tank wagon market reduced from 18 cents to 17 cents per gallon; service station, from 19 cents to 18 cents per gallon.

Continental Oil Co. retained the gasoline tank wagon and station prices in Cheyenne at 14 cents with a 3-cent discount off the tank wagon to dealers, although notice was posted that effective November 7 these prices would be advanced to 15 cents. On December 11 the gasoline tank wagon and station prices were reduced 1 cent in Butte to 17 cents and 20 cents.

Standard Oil Co. of Indiana effective December 15 reduced gasoline tank wagon price for Red Crown grade from 15.5 to 12.9 cents including 3-cent tax.

CRUDE OIL PRICE CHANGES

The Primrose Refining Co. of Wichita Falls, Tex., which has been running about 2,500 bbls. of crude oil per day from North Texas leases and paying the regular Mid-Continent gravity scale of prices, on December 10 announced that effective December 15 it would reduce its prices on all grades of oil 20 cents per barrel.

TO DISCUSS EAST TEXAS

DALLAS, Tex., Dec. 15.—Dallas petroleum geologists have been invited to attend a dinner in Tyler on the evening of December 17 for discussion of ultimate recovery per acre, rate of water encroachment and source beds of East Texas. The East Texas Geological Society will be hosts to the Dallas society.

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BUREAU OF MINES REPORT FOR MONTH OF OCTOBER, 1931

According to reports received by the Bureau of Mines, Department of Commerce, the production of crude petroleum in the United States during October, 1931, amounted to 73,079,000 bbls., a daily average of 2,357,000 bbls. This represents an increase of 236,000 bbls., or 11 per cent over the daily average of the previous month, and also a slight increase over the output of a year ago. This gain in output, following a material decline during the preceding two months, was due almost entirely to the opening up of the flush fields of Oklahoma on October 10 and to the fact that the East Texas Field was allowed to produce throughout the month. A record total of 446 wells was completed in the East Texas pools in October, but the output was kept under control by progressively limiting the daily allowable for each well. The most important event of the month in Oklahoma was the opening up of the Oklahoma City Field which resulted in an increase in daily average output from 22,000 bbls. in September to 117,000 bbls. in October. Production in California held steady at just above 500,000 bbls. daily throughout the month. Production in Louisiana continued to decline in October but the net withdrawal was much below that of September. This was due principally to the gain in output. Stocks of all the major refined products, except gasoline, declined in October; stocks of natural gasoline fell off about 500,000 bbls. The total decrease in stocks of all oil amounted to 6,339,000 bbls., compared with a decrease of 14,620,000 bbls. in September, 1931, and 4,014,000 bbls. in October, 1930.

Refined Products

Runs to stills of crude petroleum in October totaled 75,675,000 bbls., which is slightly above the September total, but lower in daily average.

The daily average output of motor fuel in October amounted to 1,245,000 bbls., or slightly below September. Stocks of motor fuel reflected the seasonal decline in consumption and rose from 35,105,000 bbls. on October 1 to 36,356,000 bbls. on October 31, the first monthly increase since April. Daily average exports of gasoline remained unchanged in October. The indicated domestic demand for motor fuel amounted to 35,051,000 bbls., a daily average of 1,131,000 bbls., which is a decrease of 7 per cent from September. At the current rate of demand, the motor fuel stocks on October 31 represent 29 days' supply, compared with 26 days' supply on hand a month ago and 31 days' supply on hand a year ago.

The refinery data of this report were compiled from schedules of 357 refineries with an aggregate daily recorded crude oil capacity of 3,761,860 bbls., covering, as far as the bureau is able to determine, all operations during October, 1931. These refineries operated during October at 65 per cent of their recorded capacity, given above, as compared with 363 refineries operating at 66 per cent of their capacity in September.

SUPPLY AND DEMAND OF ALL OILS
(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

NEW SUPPLY:	Oct., 1931	Sept., 1931*	Oct., 1930	Jan.-Oct., 1931	Jan.-Oct., 1930
Domestic production:					
Crude petroleum	73,079	63,636	72,893	704,250	763,0
Daily average	2,357	2,121	2,351	2,317	2,5
Natural gasoline	3,345	3,062	4,405	36,085	44,0
Benzol	142	138	204	1,661	2,3
Total production	76,566	66,836	77,502	741,996	809,4
Daily average	2,470	2,228	2,500	2,441	2,6
Imports:					
Crude petroleum	4,106	3,426	5,061	39,331	52,9
Refined products	3,939	3,468	3,800	33,350	37,3
Total new supply, all oils	84,611	73,730	86,363	814,677	899,7
Daily average	2,729	2,458	2,786	2,680	2,9
Decrease in stocks, all oils	6,339	14,620	4,014	52,295	15,1
DEMAND:					
Total demand	90,950	88,350	90,377	866,972	914,8
Daily average	2,934	2,945	2,915	2,852	3,0
Exports:					
Crude petroleum	2,389	2,296	2,167	22,026	20,6
Refined products	8,057	7,816	11,807	84,799	115,2
Domestic demand	80,504	78,238	76,403	760,147	778,9
Daily average	2,597	2,608	2,465	2,500	2,5
Excess of daily average domestic production over domestic demand	†127	†380	35	†59	1
STOCKS (end of month):					
Crude petroleum:					
East of California	326,106	329,098	375,868	326,106	375,8
California‡	135,894	§136,590	142,868	135,894	142,8
Total crude	462,000	§465,688	518,736	462,000	518,7
Natural gasoline	2,577	3,088	2,356	2,577	2,3
Refined products	151,599	§153,739	153,286	151,599	153,2
GRAND TOTAL STOCKS, ALL OILS	612,176	§622,515	674,378	616,176	674,3
Days' supply	210	211	231	216	2
Bunker oil (included above in domestic demand)	3,643	3,068	4,463	37,207	42,1

*Revised—see footnote (‡). †Deficiency. ‡Includes residual fuel oil. §Revised due to inauguration of new system of reporting in California. Under new system many revisions in stocks for 1931 have been made but the only ones included in this report are for crude and gasoline for September.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	Oct., 1931	Sept., 1931	Oct., 1930	Jan.-Oct., 1931	Jan.-Oct., 1930
Oil	705	445	866	5,130	10,443
Gas	142	147	282	1,637	2,360
Dry	199	233	548	3,177	5,755
Total	1,046	825	1,696	9,944	18,558

*From The Oil and Gas Journal and California office of the American Petroleum Institute.

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN UNITED STATES*
(Thousands of barrels of 42 U. S. gallons)

	Oct., 1931	Sept., 1931	Oct., 1930	Jan.-Oct., 1931	Jan.-Oct., 1930
Gasoline	669	1,552	1,433	11,486	16,015
Natural gasoline	146	75	342	1,394	1,343
Kerosene	...	...	...	194	280
Gas oil	93	...	605	1,519	3,279
Diesel oil		...	...		204
Fuel oil	...	...	3	2	30
Lubricants	...	2	4	69	114
Asphalt	...	1	2	13	17
Total	908	1,630	2,389	14,677	21,191

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

(Continued on next page)

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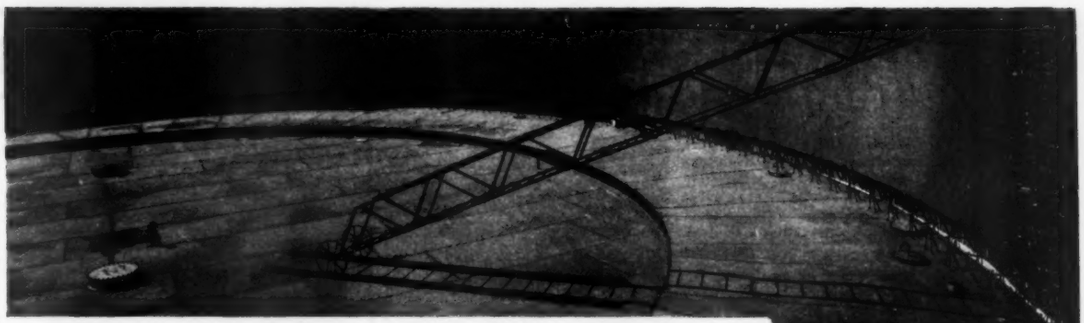

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Tulsa	2406 Exchange Bank Bldg.	New York	3147 Hudson Terminal Bldg.	Los Angeles	1323 Pacific Mutual Bldg.
Birmingham	1536 Fiftieth St., N.	Philadelphia,	2615 "1616" Walnut St. Bldg.	Havana, Cuba	Apartado 2507
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12-17-31

COMPARATIVE ANALYSES
(Thousands of barrels of 42 U. S. gallons.)

	October, 1931 Total	October, 1931 Daily av.	Sept., 1931 Total	Sept., 1931 Daily av.	Jan.-Oct. 1931	Jan.-Oct. 1930
CRUDE PETROLEUM:						
Runs to stills:						
Domestic	71,590	2,309	70,791	2,360	709,301	734,280
Foreign	4,085	132	4,303	143	40,233	51,296
Total	75,675	2,441	75,094	2,503	749,534	785,556
Imports	4,106	132	3,426	114	39,331	52,935
Exports	2,389	77	2,296	77	22,026	20,601
MOTOR FUEL:						
Production	38,582	1,245	37,469	1,249	365,700	372,684
Imports	1,181	38	1,256	42	12,242	14,884
Exports	3,461	112	3,355	112	39,398	57,500
Stocks*	36,356	.....	†35,105	.....	36,356	38,624
Domestic demand	35,051	1,131	†36,670	1,222	342,144	334,705
KEROSENE:						
Production	3,701	119	3,239	108	34,918	42,042
Imports	.....	.....	.....	.....	10	161
Exports	1,293	42	1,074	36	10,850	14,559
Stocks	5,924	.....	6,558	.....	5,924	7,632
Domestic demand	2,042	98	2,341	78	25,037	29,109
GAS OIL AND DISTILLATE FUELS:						
Production	6,974	225	7,169	239	74,904	67,152
Stocks	20,887	.....	21,657	.....	20,887	19,256
RESIDUAL FUEL OILS:						
Production	21,735	701	21,580	719	218,332	246,589
Stocks‡	23,996	.....	23,582	.....	23,996	22,035
GAS OIL AND FUEL OIL:						
Production	28,709	926	28,749	958	293,236	313,740
Imports	2,738	88	2,204	73	20,953	22,072
Exports	2,286	74	2,494	83	25,071	31,381
Stocks	44,883	.....	45,235	.....	44,883	41,292
LUBRICANTS:						
Production	2,267	73	2,143	71	22,491	29,282
Imports	1	.....	2	.....	25	32
Exports	740	24	661	22	6,886	8,516
Stocks	9,113	.....	9,234	.....	9,113	10,502
Domestic demand	1,639	53	1,549	52	17,488	18,587
WAX (thousands of pounds):						
Production	46,200	1,490	42,000	1,400	385,230	475,720
Imports	2,684	87	1,671	56	24,881	23,257
Exports	26,367	851	21,323	711	221,274	241,935
Stocks	189,167	.....	191,158	.....	189,167	240,050
Domestic demand	24,508	791	23,388	780	232,312	206,574
COKE (short tons):						
Production	159,200	5,135	180,000	6,000	1,636,100	1,615,800
Stocks	1,392,700	.....	1,515,800	.....	1,392,700	1,089,400
ASPHALT (short tons):						
Production	314,200	10,135	325,800	10,860	2,635,300	2,923,700
Stocks	299,100	.....	339,600	.....	299,100	267,100
ROAD OIL:						
Production	452	15	682	23	4,958	5,125
Stocks	349	.....	314	.....	349	287
MISCELLANEOUS:						
Production	1,217	39	1,202	40	10,510	6,338
Stocks	665	.....	697	.....	665	591

*Includes motor fuel blends held at natural gasoline plants and in gasoline pipe line systems. †Revised—see footnote (‡) under "Supply and Demand of All Oils." ‡East of California.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, OCTOBER, 1931*

	Completions Oil	Completions Gas	Completions Dry	Barrels Total initial prod.	Barrels Av. initial prod.	Drlg. Oct. 31
Texas	506	12	86	75,600	100	832
East Texas	446	..	31	58,200	100	459
Gulf Coast	13	1	4	7,500	600	66
West Texas	9	..	3	3,100	200	72
California	13	..	13	18,800	1,400	151
Kettleman Hills	1	..	..	15,000	15,000	9
Long Beach	3	..	3	300	100	15
Playa Del Rey	1	..	1	300	300	2
Oklahoma	23	11	23	144,300	6,300	217
Oklahoma County	16	..	2	143,700	9,000	47
Pottawatomie-Seminole Counties	..	..	..	.....	.....	3
New Mexico	1	..	2	100	100	53
Lea County (Hobbs)	..	..	..	.....	.....	6
Other states	163	119	75	37,700	200	1,063
Total United States	705	142	199	276,400	400	2,316

*From The Oil and Gas Journal and California office of the American Petroleum Institute.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM EAST OF CALIFORNIA
(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by fields of origin:	October, 1931 Total	October, 1931 Daily av.	Sept., 1931 Total	Sept., 1931 Daily av.	Jan.-Oct., 1931	Jan.-Oct., 1930
Appalachian:						
Pennsylvania Grade	2,143	69	2,178	73	19,323	19,866
Other (inc. Kentucky)	679	22	647	21	6,978	8,325
Lima, N. E. Ind., Mich	546	18	390	13	3,771	3,764
Illinois, S. W. Indiana	589	19	498	17	5,247	6,139
Mid-Continent:						
N. Louisiana and Ark.	2,093	67	2,435	81	27,039	30,163
W. Tex., S. E. N. Mexico	8,502	274	7,811	260	89,604	107,499
Other (Okla., Kans., N. Tex., etc.)	39,793	1,284	38,236	1,275	362,347	325,942
Gulf Coast:						
Grade A	1,241	40	1,803	60	19,979	28,122
Grade B	2,993	96	3,760	125	35,144	31,948
Rocky Mountain	1,491	48	1,704	57	18,634	19,587
California	....	..	....	..	5	309
Total demand	60,069	1,937	59,463	1,982	587,971	581,756
Exports	1,989	64	1,823	61	15,851	13,690
Domestic demand	58,080	1,873	57,639	1,921	572,120	568,058
Foreign petroleum	4,456	144	3,423	114	39,717	54,418
Total domestic demand east of California	62,536	2,017	61,062	2,035	611,837	622,476

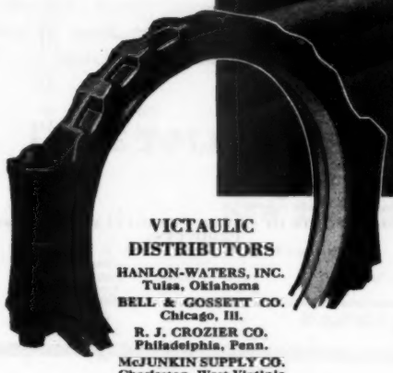
PRODUCTION OF CRUDE PETROLEUM BY FIELDS, WITH CLASSIFICATION BY GRAVITY
(Thousands of barrels of 42 U. S. gallons.)

FIELD:	October, 1931 Total	October, 1931 Daily av.	Sept., 1931 Total	Sept., 1931 Daily av.	Jan.-Oct., 1931	Jan.-Oct., 1930*
Appalachian:						
Pennsylvania Grade	2,130	69	1,927	64	17,976	20,759
Other (inc. Kentucky)	757	24	749	25	7,013	8,491
Lima, N. E. Ind., Mich.	505	16	453	15	3,860	4,568
Illinois, S. W. Indiana	503	16	503	17	4,819	5,758
Mid-Continent:						
N. Louisiana and Arkansas	1,995	65	1,987	66	23,422	28,781
W. Texas, S. E. New Mexico	7,432	240	7,291	243	79,110	100,325
Other (Okla., Kans., N. Tex., etc.)	37,937	1,224	29,813	994	344,248	324,384
Gulf Coast:						
Grade A	1,428	46	1,380	46	15,483	25,483
Grade B	3,199	103	2,832	94	33,227	33,355
Rocky Mountain	1,536	49	1,520	51	16,721	*19,733
California	15,653	505	15,181	506	153,271	191,535
Total	73,079	2,357	63,636	2,121	704,350	763,083

*Includes Alaska and Utah.

(Continued on next page)

"For every joint on the line"



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A Victaulic Coupled installation on the yard lines of a prominent operator's bulk distribution terminal.

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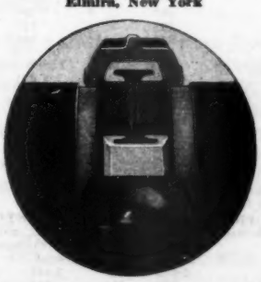

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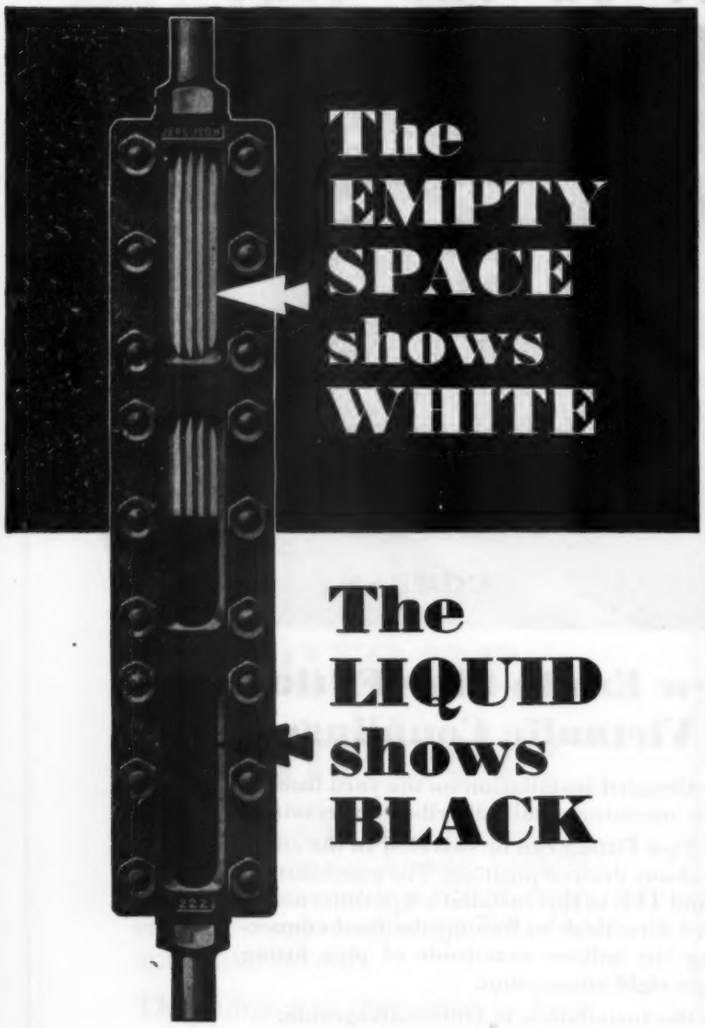

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SOMERVILLE, MASS.

PRODUCTION OF CRUDE PETROLEUM BY STATES

(Thousands of barrels of 42 U. S. gallons)

	Oct., 1931		Sept., 1931		Jan.-Oct.,	Jan.-Oct.,
	Total	Daily av.	Total	Daily av.	1931	1930*
Arkansas	1,093	36	1,105	37	12,831	16,682
California:						
Kettleman Hills	1,856	60	1,854	62	13,893	4,738
Long Beach	2,362	76	2,379	79	25,539	30,766
Santa Fe Springs	1,896	61	1,871	62	20,420	38,772
Rest of State	9,537	308	9,077	303	98,409	117,259
Total California	15,652	505	15,181	506	158,271	191,535
Colorado	143	5	112	4	1,309	1,389
Illinois	441	14	436	15	4,149	4,952
Indiana:						
Southwestern	67	2	67	2	670	806
Northeastern	3	0	3	0	32	47
Total Indiana	70	2	70	2	702	853
Kansas	3,122	101	2,926	97	30,639	35,187
Kentucky	592	19	574	19	5,284	6,324
Louisiana:						
Gulf Coast	994	32	692	23	7,716	6,962
Rest of State	902	29	882	29	10,591	12,098
Total Louisiana	1,896	61	1,574	52	18,307	19,060
Michigan	406	13	357	12	2,890	3,391
Montana	247	8	247	8	2,461	2,820
New Mexico	1,335	43	1,286	43	12,592	7,814
New York	324	10	299	10	2,802	3,137
Ohio:						
Cent. and East	355	12	345	11	3,546	4,399
Northwestern	96	3	93	3	938	1,130
Total Ohio	451	15	438	14	4,484	5,529
Oklahoma:						
Oklahoma City	3,631	117	647	22	36,702	29,535
Seminole	2,970	96	1,830	61	38,974	58,308
Rest of State	7,016	226	5,916	197	71,889	98,542
Total Oklahoma	13,617	439	8,393	280	147,565	186,385
Pennsylvania	1,201	39	1,077	36	9,614	10,945
Tennessee	* 0	0	0	0	5	16
Texas:						
Gulf Coast	3,633	117	3,520	117	41,094	51,376
East Texas	12,825	414	10,290	343	84,881	0
West Texas	6,145	198	6,050	202	66,965	93,034
Rest of State	8,373	270	8,204	274	81,163	102,812
Total Texas	30,976	999	28,064	936	274,103	247,722
West Virginia	415	13	381	13	3,738	4,339
Wyoming:						
Salt Creek	695	22	699	23	7,489	8,834
Rest of State	403	13	417	14	5,015	6,160
Total Wyoming	1,098	35	1,116	37	12,504	14,994
U. S. Total	73,079	2,357	63,636	2,121	704,250	763,082

*Includes Alaska and Utah.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM AND MAJOR REFINED PRODUCTS*

(Thousands of barrels of 42 U. S. gallons)

	Oct., 1931		Sept., 1931		Jan.-Oct.,	Jan.-Oct.,
	Total	Dy.av.	Total	Dy.av.	1931	1930
CRUDE PETROLEUM:						
Imports	4,106	132	3,426	114	39,331	52,936
From Mexico	850	28	515	17	6,861	8,534
From Venezuela	1,967	63	2,006	67	21,424	30,128
From Colombia	1,140	37	767	25	9,740	11,966
From other countries	139	4	138	5	1,306	2,307
Exports:						
Domestic crude oil	2,389	77	2,296	77	22,026	20,601
To Canada	1,898	61	1,767	59	16,668	16,392
To other countries	491	16	529	18	5,358	4,208
Shipments	....	....	.....	....	.....	1
REFINED PRODUCTS:						
Gasoline:						
Imports	1,181	38	1,256	42	12,242	14,884
Exports†	3,461	112	3,355	112	39,398	57,500
To United Kingdom	1,049	34	636	21	11,487	17,410
To France	261	8	339	12	5,209	8,150
To Canada	245	8	279	9	2,565	3,750
To other countries	1,820	59	1,823	61	18,735	27,100
Shipments	86	3	278	9	1,352	1,090
Kerosene:						
Exports	1,293	42	1,074	36	10,850	14,559
To China	164	5	224	7	1,609	2,243
To United Kingdom	328	11	120	4	2,338	2,398
To other countries	775	25	713	24	6,740	9,761
Shipments	26	1	17	1	163	157
Gas oil and fuel oil:						
Imports	2,738	88	2,204	73	20,953	22,072
Exports	2,286	74	2,494	83	25,071	31,381
To Japan	434	14	449	15	4,623	4,757
To Chile	428	14	196	7	2,612	3,751
To other countries	1,383	45	1,572	52	15,585	19,320
Shipments	41	1	277	9	2,251	3,553
Lubricants:						
Exports	740	24	661	22	6,886	8,515
To United Kingdom	240	8	86	3	1,498	1,777
To France	116	4	155	5	1,166	1,281
To other countries	379	12	416	14	4,153	5,385
Shipments	5	....	4	....	69	72
Wax (thousands of pounds):						
Imports	2,684	87	1,671	56	24,881	23,257
Exports	36,367	851	31,323	711	221,274	241,935
To United Kingdom	6,846	221	6,458	215	52,113	67,327
To Italy	4,554	147	3,021	101	34,489	35,881
To other countries	14,965	483	11,841	395	134,646	138,695
Shipments	2	....	3	....	26	32

*From Bureau of Foreign and Domestic Commerce.
†Includes benzol—49,000 bbls. in October.

GASOLINE PRODUCTION BY THE VARIOUS METHODS, OCTOBER, 1931

(Thousands of barrels of 42 U. S. gallons)

	Straightrun		Cracked		Nat. gasoline		Grand
	Total	%	Total	%	Total	%	total
East Coast	2,670	43	3,351	54	168	3	6,189
Appalachian	857	53	705	44	44	3	1,606
Ind., Ill., Ky., etc.	2,791	47	2,870	48	333	5	5,994
Okla., Kans., Mo.	2,657	53	1,895	38	465	9	5,017
Texas	4,793	48	4,371	44	811	8	9,975
Louisiana and Ark.	1,040	43	1,209	50	172	7	2,421
Rocky Mountain	398	42	431	45	120	13	949
California	3,630	62	1,181	20	1,068	18	5,879
Total	18,836	50	16,013	42	3,181	8	38,030
Texas Gulf Coast	3,109	44	3,569	50	453	6	7,131
Louisiana Gulf Coast	668	40	927	55	93	5	1,688

(Continued on next page)

MOVE OUT—

—old, obsolete, profit eating machines. The new "TOLEDO" No. 1-2-4 1″ to 4″ Pipe Machine will put your shop on a profitable basis. This new "TOLEDO" of advanced design and high production threads 4″ pipe in 42 seconds and cuts it off in 9 seconds. Other sizes in proportion. Compare this with your present method of cutting and threading pipe.

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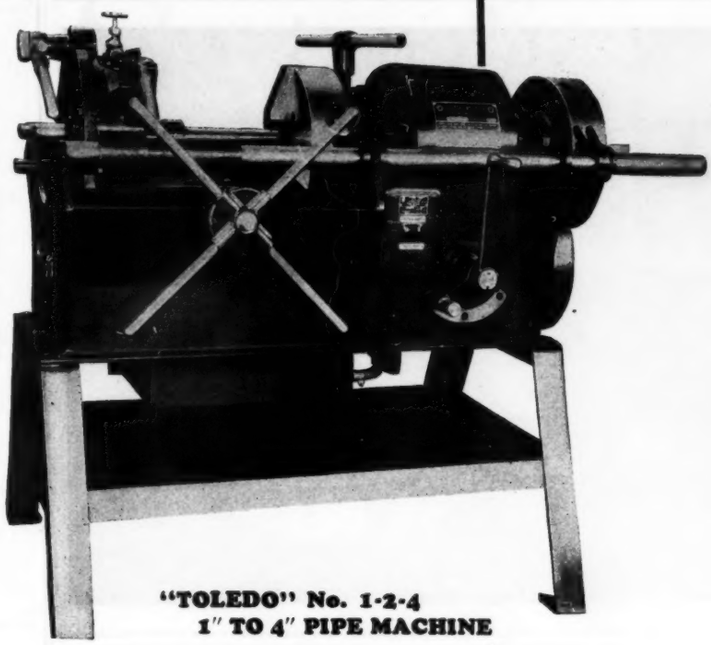

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Profits from the Scrap-heap!

DISCARDED pipe, valves, fittings and drilling equipment represent a substantial investment. Modern reclamation methods provide an economical way of cashing in on this investment.

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Soaking equipment for a short time in an Oakite solution, for example, removes every trace of muck and oil. Scraping and scrubbing are reduced to a minimum. Many parts are ready for immediate re-use. Repairs when necessary, are more quickly and more accurately made on clean parts.

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Those hard-to-make-hold joints—

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SMOOTH-ON No. 1 adheres well to the threads, expands and contracts with the pipe, and fills every minute void with a deposit which can't blow out, shrivel, shrink, dry or crack from time or heat. Joints sealed with this metallic filler are not affected by vibration or violent change of temperature or pressure.

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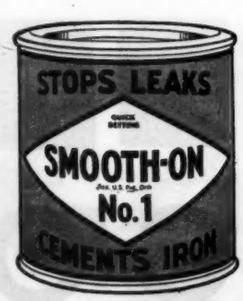

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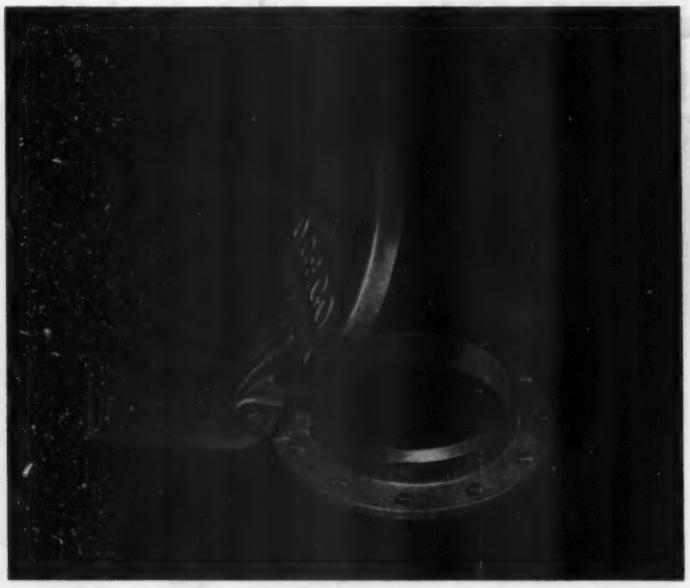
Do it with **SMOOTH-ON**



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OCECO

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

EAST OF CALIFORNIA:	Oct. 31, 1931	Sept. 30, 1931	Oct. 31, 1930
At refineries by location:			
East Coast: Domestic	9,019	9,629	10,769
Foreign	3,551	3,932	3,421
Appalachian	2,076	2,190	3,621
Indiana, Illinois, Kentucky, Michigan, etc.	3,041	3,246	3,051
Oklahoma, Kansas and Missouri	5,049	4,850	5,239
Texas: Inland	1,721	1,838	1,564
Gulf Coast: Domestic	6,366	6,592	9,681
Foreign	260	232	324
Arkansas and inland Louisiana	604	632	946
Louisiana Gulf Coast: Domestic	3,682	3,978	5,862
Foreign	656	612	855
Rocky Mountain	1,680	1,591	1,736
Total	36,705	38,358	46,032
At refineries by origin:			
Pennsylvania Grade	1,883	1,926	3,421
Other Appalachian (including Kentucky)	732	706	919
Lima, northeast Indiana, Michigan	180	242	203
Illinois-Southwest Indiana	128	125	87
North Louisiana and Arkansas	2,548	2,691	5,182
West Texas and southeast New Mexico	3,241	3,479	5,010
Oklahoma, Kansas, North Texas, etc.	17,314	18,436	18,074
Gulf Coast: Grade A	1,513	1,569	4,137
Grade B	4,020	3,676	3,671
Rocky Mountain	1,680	1,591	1,736
California	....	....	....
Foreign	3,467	3,817	4,692
Total	36,705	38,358	46,032
Pipe line and tank farm:			
Pennsylvania Grade	4,671	4,641	5,629
Other Appalachian (including Kentucky)	999	947	950
Lima, northeast Indiana, Michigan	1,466	1,444	1,407
Illinois-Southwest Indiana	9,782	9,862	10,188
North Louisiana and Arkansas	18,304	18,270	20,279
West Texas and southeast New Mexico	36,956	37,849	45,912
Oklahoma, Kansas, North Texas, etc.	174,172	175,119	195,787
Gulf Coast: Grade A	4,408	4,071	6,339
Grade B	9,143	9,296	12,274
Rocky Mountain	23,299	23,341	24,447
Total	283,201	284,840	323,213
Total refinery, pipe line and tank farm	319,906	323,198	369,245
Producers'	6,200	5,900	6,623
Total crude east of California	326,106	329,098	375,868
California: Light	40,328	*40,841	40,320
Heavy (including fuel)	95,566	*95,749	102,530
Total crude (including fuel oil in California)	462,000	*465,688	518,736

*Revised.

RUNS TO STILLS AND OUTPUT OF REFINERIES, OCTOBER, 1931

(Thousands of barrels of 42 U. S. gallons)

	Crude oil			Unfinished oils rerun	Natural gasoline	Total input
INPUT—	Domestic	Foreign	Total			
East Coast	10,555	3,891	14,446	974	168	15,588
Appalachian	3,264	.....	3,264	243	44	3,551
Ind., Ill., Ky., etc.	10,313	.....	10,313	153	333	10,799
Okla., Kans., Mo.	8,193	.....	8,193	510	465	9,168
Texas	17,780	50	17,830	1,922	811	20,563
Louisiana and Ark.	4,792	144	4,936	600	172	5,708
Rocky Mountain	1,445	.....	1,445	369	120	1,934
California	15,248	.....	15,248	1,144	*1,068	17,460
United States Total	71,590	4,085	75,675	5,915	3,181	84,771
Texas Gulf Coast	12,935	50	12,985	1,687	453	15,125
Louisiana Gulf Coast	3,231	144	3,375	239	93	3,698

			Gas oil and fuel oils				
OUTPUT—	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Total	Lubricants	Wax (thousands of lbs.)
East Coast	6,139	647	1,150	4,406	5,556	744	23,530
Appalachian	1,606	321	285	361	646	393	7,560
Ind., Ill., Ky., etc.	5,994	338	857	1,249	2,106	149	3,030
Okla., Kans., Mo.	5,017	644	832	1,472	2,304	267	1,960
Texas	9,975	1,040	1,355	5,363	6,718	512	2,800
Louisiana and Ark.	2,421	228	514	1,689	2,203	76	5,400
Rocky Mountain	949	62	94	262	356	11	1,680
California	5,879	421	1,887	6,933	8,820	124	.....
U. S. Total	38,030	3,701	6,974	21,735	28,709	2,267	46,200
Texas Gulf Coast	7,131	835	1,128	3,758	4,886	496	2,520
La. Gulf Coast	1,888	184	383	1,061	1,444	59	5,400

OUTPUT (Cont'd.)—	Coke (tons)	Asphalt (tons)	Road oil	Miscellaneous products	Unfinished products	Shortage
East Coast	13,000	175,300	24	46	476	797
Appalachian	3,500	10,400	19	106	179	179
Ind., Ill., Ky., etc.	57,300	45,800	125	519	846	167
Okla., Kans., Mo.	32,200	2,500	131	174	53	403
Texas	34,100	15,500	8	76	885	1,079
Louisiana and Ark.	7,000	23,600	10	135	299	158
Rocky Mountain	10,800	1,800	46	35	309	94
California	2,800	39,300	89	126	1,431	841
United States Total	159,200	314,200	452	1,217	4,478	3,313
Texas Gulf Coast	22,500	15,500	8	56	744	799
Louisiana Gulf Coast	6,900	19,100	1	97	39	34

*Includes 160,000 bbls. run through pipe lines.

PRODUCTION OF MOTOR FUEL

(Thousands of barrels of 42 U. S. gallons)

	Oct., 1931		Sept., 1931		Jan.-Oct.,	Jan.-Oct.,
	Total	Daily av.	Total	Daily av.	1931	1930
Straightrun gasoline	18,836	608	19,120	637	184,642	192,136
Cracked gasoline	16,013	517	15,149	505	146,103	137,849
Natural gasoline:						
Blended at refineries	3,021	97	2,599	86	28,478	34,489
Blended at plants*	12	0	13	1	134	221
Run through pipe lines†	160	5	155	5	983	1,513
Jobbers, export, etc.	398	13	362	10	3,700	4,590
Benzol produced‡	142	5	138	5	1,661	2,219
TOTAL MOTOR FUEL	38,582	1,245	37,469	1,249	365,700	372,884

*East of California. †To refineries in California. ‡Estimated.

SHIPMENTS OF MOTOR FUEL BY PIPE LINES

(Thousands of barrels of 42 U. S. gallons)

	October, 1931	September, 1931	Jan.-Oct., 1931
Motor fuel turned into lines	1,887	2,105	10,900
Motor fuel delivered from lines	2,549	1,929	9,267
Stocks in lines and working tanks end of month	1,732	1,695	1,732

(Continued on next page)

PRODUCTION AND DISTRIBUTION OF NATURAL GASOLINE

(Thousands of barrels of 42 U. S. gallons)

	Oct., 1931		Sept., 1931		Jan.-Oct., 1931	
	Total	Daily av.	Total	Daily av.	Total	Daily av.
Production	3,345	108	3,062	102	36,085	119
Decrease in all stocks	511	16	126	4	716	2
Total	3,856	124	3,188	106	36,801	121
Blended at refineries	3,021	97	2,599	86	28,478	94
Blended at plants east of Calif.	12	0	13	1	134	0
Run through pipe lines in Calif.	160	5	155	5	983	3
Jobbers, exports, etc.	398	13	302	10	3,700	12
Increase in all stocks	0	0	0	0	0	0
Balance	265	9	119	4	3,506	12
Total	3,856	124	3,188	106	36,801	121

STOCKS HELD BY REFINING COMPANIES, OCTOBER, 1931*

(Thousands of barrels of 42 U. S. gallons)

			Gas oil and fuel oil		
	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Total
East Coast	3,994	1,062	4,806	4,945	9,751
Appalachian	1,389	354	887	735	1,622
Ind., Ill., Ky., etc.	4,710	637	2,523	2,587	5,110
Okla., Kans., Mo.	3,010	612	2,810	3,026	5,836
Texas	6,174	998	3,716	9,153	12,869
Louisiana and Arkansas	838	319	804	3,018	3,822
Rocky Mountain	1,311	333	361	532	893
California	13,189	1,609	4,980	(†)	4,980
Total	34,615	5,924	20,887	23,996	44,883
Texas Gulf Coast	4,130	836	2,933	5,811	8,744
Louisiana Gulf Coast	696	302	616	2,423	3,039

		Wax (thousands of pounds)			Coke
	Lubricants	Crude scale	Refined	Total	tons
East Coast	3,010	40,367	19,006	59,373	44,700
Appalachian	1,005	20,715	3,468	24,183	15,400
Ind., Ill., Ky., etc.	1,028	18,938	1,541	20,479	119,200
Okla., Kans., Mo.	615	3,580	1,514	5,094	151,000
Texas	2,088	1,532	12,877	14,409	709,100
Louisiana and Arkansas	125	36,215	1,170	37,385	114,900
Rocky Mountain	238	27,107	1,137	28,244	132,800
California	1,004	.....	.....	.....	105,600
Total	9,113	148,454	40,713	189,167	1,392,700
Texas Gulf Coast	2,004	1,438	12,783	14,221	591,300
Louisiana Gulf Coast	109	36,215	1,170	37,385	114,600

	Asphalt (tons)	Road oil	Miscellaneous products	Unfinished oils	Natural gasoline
East Coast	97,700	22	68	8,423	127
Appalachian	11,300	29	56	1,508	3
Ind., Ill., Ky., etc.	90,600	43	228	6,224	62
Okla., Kans., Mo.	3,200	61	22	3,121	29
Texas	8,700	7	9	13,221	183
Louisiana and Arkansas	42,100	5	10	2,390	11
Rocky Mountain	3,000	51	44	1,743	....
California	42,500	131	228	18,255	1,638
Total	299,100	349	665	44,885	2,053
Texas Gulf Coast	8,700	7	3	11,888	175
Louisiana Gulf Coast	23,700	5	6	1,754	3

*Stocks east of California represent inventories held by refining companies at or near refineries; California stocks represent inventories held by refining companies on the Pacific Coast of the United States at refineries, at or in transit to water terminals and bulk distributing stations. †Included with heavy crude. ‡Includes 3,597,000 bbls. tops.

CENTRAL WEST FIELDS

(Continued from Page 51)

are drilling on the John H. Scott farm, Section 29, Orange Township.

In Meigs County Joe Kiggins' No. 1 F. S. Nelson farm, Section 28, Rutland Township, is a light gas well in the Maxon sand from 704 to 751 feet. Simpson & Rice failed to find any pay in the Second Cow Run sand at 702 feet and it has been abandoned as dry. John Mayer and others are drilling around 900 feet in No. 3 on the Virginia Johnson farm. Section 35, Salisbury Township. E. E. Martin and others are reported shut down at 1,650 feet on the J. G. Miller farm, Section 3, Chester Township. Federal Oil & Gas Co. has a machine on the C. C. Snodgrass farm, Section 36, Orange Township.

Lawrence County

In Lawrence County T. G. Ray & Son Gas Co. drilled in an average gas well on the Irene R. Smith farm, Section 24, Union Township, with a rock pressure of 600 pounds. Fox & Ray brought in a fair gas well on the J. L. Wilson farm, Section 31, same township, with a rock pressure of 750 pounds. Ralph Brothers have rigged up but have no water at their No. 4 T. A. Knull farm, Section 20, Perry Township. C. C. Wolfe and others are down around 900 feet on the N. J. Suiter heirs farm, Section 23, same township. Seras and others are down around 1,000 feet on the M. Nicholson and others farm, Section 4, Perry Township.

In Vinton County the Co-operative Oil Co. is drilling No. 3 on the Robert Nelson farm, Section 4, Knox Township. Wittmer Oil & Gas Properties shut down at 2,940 feet on the Daniel Will farm, Section 2, Elk Township.

In Jackson County Kessler and others are down around 400 feet on the Pearley Graves farm, Section 1, Jackson Township.

INDIANA

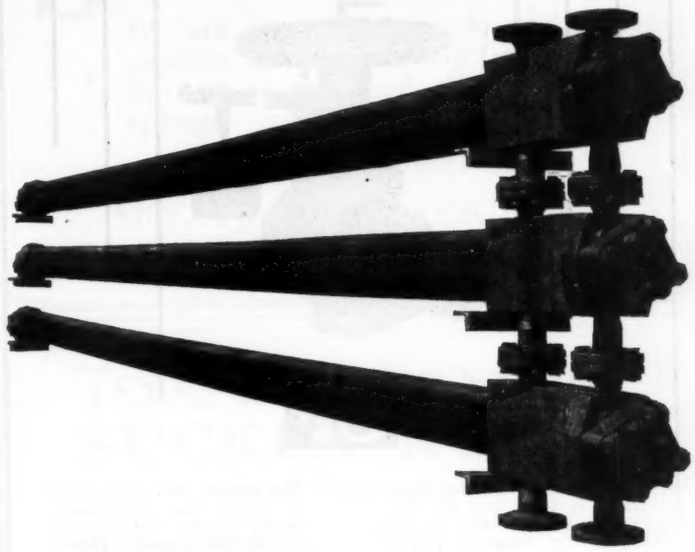
Perry County, in the extreme southern part of Indiana, leads all other counties in completions, there being three wells, one a light oil producer and two dusters. They were Hughes, Rife and others' No. 1 John Kaufman farm, SE Section 17, Clark Township, with an initial of about 5 bbls.; Lane, Beard and others' No. 1 Ben Harpenau farm, Section 16, Anderson Township, dry at 480 feet, and the same firm's No. 1 William Schmall farm, NW Section 34, Tobin Township, also a duster. W. S. M. Hughes is drilling on the William Dotson farm, NE Section 13, Clark Township.

Pierson and others drilled a dry hole on the John Black farm, in the northwest corner of Section 11, Busseron Township, Knox County. L. J. Lloyd's recent completion on the Prather farm, near the hamlet of Oaktown, in the SE Section 3, Harrison Township, same county, is said to have shown an open flow of 4,000,000 feet of gas, one of the best gas wells found in Indiana for many a day. James H. Gardner is putting down a test on the Union Investment Co.'s land, NE Section 9, Busseron Township, in hope of finding a gas well of size.

In Sullivan County, C. W. Scott's No. 6 well, 200 feet from the north line and 660 feet from the west line of the C. L. Davis farm, NW SE, Section 14, Turman Township, is reported a dry hole at 840 feet. Same party was deepening No. 3 on the C. W. Scott farm, NE Section 6, Fairbanks Township, same county, but the well caught fire, destroying the rig, and the tools dropped to a depth of 2,200 feet.

I. A. Polhamus was compelled to abandon his No. 2 on the William Grass farm,

A heat exchanger



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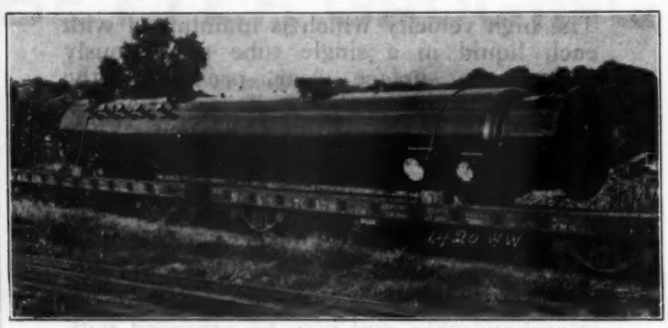

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THE HEDGES-WALSH-WEIDNER CO.

CHATTANOOGA, TENN.

Mayo Bldg., Tulsa 200 Madison Ave., New York

NE Section 11, Huff Township, Spencer County. The well had a nice oil showing, but water broke in in large volume when shot. Santa Fe Oil Co. is drilling No. 4 Mary Berg farm, NW Section 11, same township.

Wyandot Oil & Gas Co. drilled in a light gas well on the Dan Cunningham farm, SW Section 12, Taylor Township, Harrison County, at 42½ feet. Same company has started No. 2 on the John Cunningham farm, Section 7, same township.

Dr. F. C. Baker and others drilled in a nice shallow gas well on the Hankins farm, SW Section 8, Craig Township, Switzerland County, and started a second test on the same property. There are five additional wells under way in this township, and no doubt many wells will be drilled in the vicinity by the landowners to get a supply of fuel for their homes.

Delph & Chew drilled in a test on the Charles E. Jackson property in Henry County, in the town of Newcastle. The well showed 230 pounds rock pressure at a depth of 930 feet. Same parties are drilling on the J. F. McCormick farm, NW Section 1, Fall Creek Township, same county.

Last report from the wildcat being drilled by H. J. Hauck and others on the John Siddles farm, SW Section 4, Lincoln Township, LaPorte County, had reached 1,105 feet.

ILLINOIS

Most of the drilling wells in the Illinois Field at this time are shut down, and the only new wells starting are the Webster Oil & Gas Co.'s test on the G. Harms farm, Section 23, Columbia Township, Monroe County, and Collins and others' test on the March heirs, Section 33, Sugar Loaf Township, St. Clair County, near Stooky, in the western area of the state. In the Dupo Field, in the same county, Hart & Woodworth abandoned No. 1 on Nevada Cooper No. 2 property, in NE Section 28. C. E. Karns and others abandoned No. 1 C. P. Crouch in NW Section 28, Sugar Loaf Township. Pilot Oil Co. abandoned No. 1 on the Hall-Wallace lots, SE Section 21, same township.

In the Bridgeport Field, in Petty Township, Lawrence County, the Ohio Oil Co. abandoned Nos. 4, 7 and 8 John W. Bolles No. 1 farm, SE Section 7, Petty Township, and also No. 1 on the W. E. Updike No. 1 farm, NW Section 36, same township.

Last report from the wildcat being drilled by the Phillips Petroleum Co. on the W. R. Moss farm, Section 24, Elk Prairie Township, Jefferson County, is that it had reached 2,763 feet.

KENTUCKY

Eight completions were reported from the Western Kentucky area, the best being Mel Root and others' No. 3 on Central State Bank land, in the Calhoun Field of McLean County and in the Barretts Hill Pool, which produced an initial of 50 bbls. In the same pool, James C. Ellis brought in a 40-bbl. producer in a second test on the Turner farm, and Vickers and others' No. 1 on the King farm produced 25 bbls. the first 24 hours.

In the Owensboro Field of Ohio County, the Cumberland Petroleum Co.'s No. 4 on the David Brooks 120 acres, in the Haynesville Pool, produced 40 bbls. the first 24 hours, from a depth of 300 feet, with No. 5 spudding in.

Brenner and Adams' Nos. 3 and 4 on the Albert Jackson farm in the Cane Run Pool, in Daviess County, produced an initial of 10 bbls. each.

Imperial Oil & Gas Products Co.'s test on the S. A. Freeman farm, in the Niagara Pool, showed an initial of 35 bbls., while the same company's second test on the Dick Jennings farm, same pool, proved a dry hole.

Hupp and Duff are nearing pay sand in Nos. 5 and 6 on the Grover Jaggers farm, and also in No. 3 W. T. Spencer farm, in the Logsdon Valley Pool, a few miles east of the city of Munfordville, the county seat of Hart County.

Total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during November were 135,979.66 bbls.

TRAFFIC POOLING LAW AN EXAMPLE FOR OIL

By William G. Wheeler
Washington, D. C.

The Oil and Gas Journal has, from time to time, referred to the desirability of securing some relaxation of the laws of the United States relating to "combinations in restraint of trade."

I am sensible of the fact that the oil industry is in much need of such legislation. I believe it would be beneficial to the entire country if these laws were made more flexible. Legitimate business has been and will continue to be much hampered by them. In one instance, at least, Congress has relaxed them. I refer to Section 407 of Public Laws of the United States, approved February 28, 1920, commonly referred to as Transportation Act 1920, which reads as follows:

"Sec. 407. The first paragraph of Section 5 of the Interstate Commerce Act is hereby amended to read as follows:

"Sec. 5. (1) That, except upon specific approval by order of the Commission as in this section provided, and except as provided in paragraph (16) of Section 1 of this Act, it shall be unlawful for any common carrier subject to this Act to enter into any contract, agreement or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid each day of its continuance shall be deemed a separate offense: Provided, That whenever the Commission is of opinion, after hearing upon application of any carrier or carriers engaged in the transportation of passengers or property subject to this Act, or upon its own initiative, that the division of their traffic or earnings, to the extent indicated by the Commission, will be in the interest of better service to the public or economy in operation, and will not unduly restrain competition, the Commission shall have authority to approve and authorize, if assented to by all the carriers involved, such divisions of traffic or earnings, under such rules and regulations, and for such consideration as between such carriers and upon such terms and conditions, as shall be found by the Commission to be just and reasonable in the premises."

This is, as you will observe, very broad language. It would probably be possible, with the approval of the Commission to pool the entire operating business and the proceeds thereof of all the railroads of the country in one common pool. Note, also, that the extent to which competition may be restrained is largely left to the discretion of the Commission, the only limitation being that competition must not be unduly restrained.

It seems to me that some legislation embodying these principles might be obtained from Congress in the interest of the oil industry and other industries engaged in the development of natural resources of this country.

If agreements for curtailment of production could be made by those engaged in the industry, even though the sanction of some Federal regulatory body be necessary, it would be preferable to practices necessary under existing conditions.

RUMANIAN OIL FOR FRANCE

A Rumanian economic commission left for Paris December 1 prepared to offer to French interests the Rumanian Government's entire crude oil royalties for French refineries. A bill has been prepared for presentation to the Rumanian Parliament permitting the exportation of approximately a third of the country's crude oil output.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 36)

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 22-34-43w ..... T.D. 3,640 ft.; temp. abd.

MORRIS COUNTY

Allender et al's No. 1 Wycoff, C SW SE, Sec. 5-17-7.... S.D. 105 ft.
Urschel et al's No. 1 Berzuch, NW SE NW, Sec. 10-17-7.. Fishing 915 ft.
Hankerson et al's No. 1 Cessman, SW SE, Sec. 34-16-9.. S.D. 2,625 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW, Sec. 21-14-15.... S.D. 2,058 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor., Sec. 3-2-35w.. S.D. 3,925 ft.

RICE COUNTY

Cress et al's No. 1 Sharp, SE NE, Sec. 13-20-10w ..... Show oil 3,107-15 ft.; Siliceous 3,330-36 ft.; estimated 1,500 bbls.: shut in.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW, Sec. 17-19-16w ..... Show of oil in Conglomerate 3,835-80 ft.; plugged back to 3,825-40 ft.; estimated 150 bbls.; S.D.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W½ NE NW, Sec. 20-13-4w ..... S.D. 2,710 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW, Sec. 27-7-26w .... Drlg. 3,895 ft.

STAFFORD COUNTY

Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE, Sec. 11-24-31w ..... S.D. 3,560 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w... S.D. 5,521 ft.

SUMNER COUNTY

Tighe et al's No. 1 Thieson, C NW SE SE, Sec. 22-34-2.... S.D. 2,550 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW, Sec. 6-34-2 ..... S.D. 2,300 ft.
Spencer et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3... Drlg. 4,175 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3.... S.D. 1,720 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

KIOWA COUNTY

Christian's No. 1 Jones, NE SE, Sec. 8-7-18w ..... S.D. 320 ft.

LATIMER COUNTY

Choctaw Oil Co.'s No. 1 Fitzgerald, C NW NW, Sec. 1-6-22. Sand 1,910-50 ft.; S.D. 2,168 ft.
P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 ..... S.D. 1,542 ft.

LE FLORE COUNTY

Dowd et al's No. 2 Thomas, SE NE, Sec. 16-3-22 ..... Drlg. 350 ft.

LINCOLN COUNTY

Hilton Phillip's No. 1 Phillips, SW NW, Sec. 2-14-3 .... Fishing 4,840 ft.
Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5 ..1,160 ft.; S.D.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Drlg. 5,851 ft.; top Wilcox 5,443 ft.; top Siliceous 5,680 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE, Sec. 6-1-2 .... S.D. 2,425 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19 .. S.D. 1,011 ft.

OKFUSKEE COUNTY

Shepard et al's No. 1 Nevens, SE NW SW, Sec. 3-12-10.. S.D. 3,638-90 ft; Wilcox sand, hole full wtr.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w ..... S.D. 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... S.D. 5,515 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5 ..... S.D. 1,950 ft.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5.. Rig.

PITTSBURG COUNTY

Tapa Oil Co.'s No. 1 Fulton, SE, Sec. 34-7-14 ..... S.D. 1,200 ft.
J. Morrison's No. 1 Fowler, NE SE, Sec. 13-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14 ..... Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-24w ..... C.O. 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec. 4-11-26w ..... S.D. 3,375 ft.

SEQUOYAH COUNTY

Braman Oil Co.'s No. 1 Unknown, C NW SW, Sec. 29-12-22 ..... Drlg. 1,350 ft.

WAGONER COUNTY

J. A. Barbee's No. 1 Childers, CWL NW SW, Sec. 28-18-17 ..... S.D. 875 ft.

WASHITA COUNTY

Miley Pet. Co.'s No. 1 Wolfe, NE SW, Sec. 23-9-17w.... Location.
Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w ..... Drlg. 2,740 ft.; show oil 2,459-67 ft.; S.D. 2,757 ft.
Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18 ..... S.D. 1,140 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-1S.. T.D. 4,720 ft., to cement.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Morris et al's No. 1 Mansell, SW NW NW, Sec. 9-2s-12 .. S.D. 285 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE, Sec. 18-2s-10 ..... S.D. 1,530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10. T.D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 ..... T.D. 740 ft; plugged back to 450-80 ft.
Whalen et al's No. 1 Mason, NW SE SW, Sec. 24-6s-9... S.D. 430 ft.

CHOCTAW COUNTY

Hobson Bros.' No. 1 McChristian, NW NE NE, Sec. 12-6s-19 ..... S.D. 730 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w ..... Location.

LOVE COUNTY

Van Vleck's No. 1 Sheldon, NE SE NW, Sec. 14-8s-2E ... Drlg. 1,678 ft.
Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2 ... Show oil and gas 970-72 ft. and 1,324-34 ft.; S.D. 1,651 ft.

MARSHALL COUNTY

Everette et al's No. 1 Agres, SE NE, Sec. 14-7s-6 ..... Fishing 1,160 ft.
Summers-Sellers' No. 1 Beams, NE SW NE SW, Sec. 20-7s-5 ..... Rig.
Newman et al's No. 1 Henry, NW cor., Sec. 22-7s-5..... Rig.
Tallaferro et al's No. 1 fee, NW SE SE NW, Sec. 34-5s-5 ..... Drlg. 915 ft.

McCURTAIN COUNTY

Prassell et al's No. 1 Wagoner, SE NE, Sec. 5-8s-27..... S.D. 150 ft.
Stampfs et al's No. 1 Harris, SW NW SW, Sec. 14-9s-25.. Drlg. 1,700 ft.
Stewart's No. 1 Patterson, C SE SE, Sec. 7-6s-24 ..... Drlg. 825 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-3s-15..... S.D. 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-18 ..... S.D. 340 ft.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-1s-5w .... Sand 990-1,004 ft; S.O; S.D.

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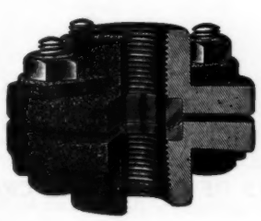

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for September

RUNS

	Month (bbls.)	Dly av. (bbls.)
Prairie P. L. Co.*	528,000	17,600
Gulf P. L. Co.	1,058,467	35,282
Texas P. L. Co.	378,133	12,604
Magnolia P. L. Co.	1,134,918	37,831
Empire P. L. Co.	1,263,766	42,126
Cosden P. L. Co.	564,050	18,802
Stanolind P. L. Co.*	1,245,000	41,500
Oklahoma P. L. Co.	2,074,225	69,144
Other lines*	3,123,000	104,100
Total September	11,369,559	378,990
Total August	13,029,328	419,301
Difference	1,659,639	40,311

SHIPMENTS

Prairie P. L. Co.	3,762,895	125,430
Gulf P. L. Co.	1,746,138	58,204
Texas P. L. Co.	1,079,849	35,995
Magnolia P. L. Co.	920,128	30,671
Empire P. L. Co.	1,857,547	61,918
Cosden P. L. Co.	711,942	23,731
Stanolind P. L. Co.	3,454,590	115,153
Oklahoma P. L. Co.	2,206,570	73,552
Other lines*	4,350,000	145,000
Total September	20,069,659	669,654
Total August	23,270,345	750,656
Difference	3,200,686	81,002

STOCKS

Prairie O. & G. Co.*	35,593,000
Gulf P. L. and Gypsy Oil Co.	7,942,451
The Texas Company	2,784,096
Magnolia Petroleum Co.	6,904,382
Empire P. L. Co.	3,488,478
Mid-Continent Petroleum Corp.	3,348,098
Stanolind Crude Oil Pur. Co.*	15,232,000
Oklahoma P. L. Co.	1,054,256
Carter Oil Co.	6,882,733
Other lines*	15,408,000
Total September	98,657,494
Total August	105,427,880
Difference	6,770,386

*Estimated.

EASTERN PIPE LINE REPORT
FOR MONTH OF OCTOBER

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	145,864.04	154,511.51
S. W. Pa. P. L.	79,823.98	79,162.91
Eureka P. L.	306,199.28	321,800.33
Buckeye P. L. (Macksburg)	277,205.53	282,641.23
Buckeye P. L. (Cleveland)	12,190.61	12,576.07
Buckeye P. L. (Lima, etc.)	82,263.82	85,128.77
Indiana P. L.	2,703.99	2,549.84
Cumberland P. L.	145,866.70	
N. Y. Transit	30,392.22	36,518.13
Tide Water P. L.	22,802.35	23,226.70
Pure Oil	292,400.07	313,618.79
Stoll Oil Ref.	29,470.48	69,655.93
Bradford Tran.	413,169.77	476,204.68
Ashland Ref.		144,886.55
Total	1,840,352.84	2,002,475.44
Daily average	61,345.09	64,595.98

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	499,112.79	582,367.42
S. W. Pa. P. L.	423,403.26	479,788.62
Eureka P. L.	372,988.75	354,253.27
Buckeye P. L. (Macksburg)	234,573.66	284,152.11
Buckeye P. L. (Cleveland)	1,944.16	1,712.38
Buckeye P. L. (Lima, etc.)	1,802,206.78	1,712,258.64
Indiana P. L.	909,359.87	856,217.10
Cumberland P. L.	115,316.63	
Southern P. L.	70,722.76	69,625.59
N. Y. Transit	171,412.21	191,559.68
Northern P. L.	255,413.44	168,179.95
Tide Water P. L.	465,676.21	516,207.68
Pure Oil	222,735.09	263,733.25
Bradford Tran.	450,595.64	559,039.81
Tuscarora	500,545.93	346,805.63
Ashland Ref.		144,886.55
Total	6,526,110.18	6,535,782.71
Daily average	217,537.01	210,831.70

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	749,274.20	673,029.18
S. W. Pa. P. L.	404,139.10	435,631.21
Eureka P. L.	1,445,855.17	1,162,617.18
Buckeye P. L. (Macksburg)	347,132.33	307,630.86
Buckeye P. L. (Cleveland)	39,619.20	36,248.81
Buckeye P. L. (Lima, etc.)	2,778,403.92	2,659,895.96
Indiana P. L.	523,814.43	551,521.77
Cumberland P. L.	69,282.55	64,611.76
Southern P. L.	219,384.72	233,968.56
N. Y. Transit	108,612.34	99,292.01
Northern P. L.	208,028.03	300,534.94
Tide Water P. L.	924,216.84	1,015,782.92
Pure Oil	485,055.55	556,871.54
Tuscarora	11,544.91	11,658.70
Bradford Trans.	178,031.09	308,399.51
Total	8,492,431.43	8,417,694.91
Decrease	700,025.90	74,736.52

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of September and October, showing gross stocks of the above fields:

	Sept., 1931	Oct., 1931
Pennsylvania	3,054,494.51	3,031,430.00
Lima	664,893.87	619,693.95
Kentucky	79,690.06	75,019.27
Mid-Continent	4,202,724.97	4,145,615.17
Illinois	15,643.58	
Michigan	474,984.44	545,936.52
Total	8,492,984.44	8,417,694.91

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
January	52,904	51,749	75,907	53,939
February	57,003	51,833	79,256	55,163
March	57,485	54,252	76,083	54,331
April	56,812	58,444	84,536	54,914
May	62,067	59,902	70,546	54,344
June	58,230	58,833	75,430	54,110
July	57,144	66,087	68,921	50,723
August	57,745	66,087	54,291	51,502
September	53,487	67,315	56,595	51,345
October	58,100	76,093	58,179	54,595
November	53,865	74,831	52,332	
December	52,025	74,561	53,999	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
January	146,465	165,721	217,623	175,369
February	167,368	159,357	224,355	183,494
March	158,883	161,474	228,846	189,508
April	172,935	169,787	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	211,632
August	192,853	194,946	205,506	224,166
September	194,138	201,214	193,999	217,537
October	176,000	191,367	157,675	210,833
November	176,898	202,743	146,638	
December	173,572	186,257	143,001	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
January	7,596,564	12,220,045	11,831,093
February	8,738,835	12,991,561	11,506,488
March	9,002,058	13,247,217	11,012,163
April	8,978,172	13,233,961	11,044,457
May	8,903,560	13,052,953	10,728,239
June	8,921,275	13,396,855	9,903,349
July	9,211,565	13,268,562	9,569,849
August	9,440,643	13,047,051	9,192,457
September	9,443,067	12,812,018	8,492,431
October	9,441,101	12,437,553	8,417,694
November	9,868,538	11,851,380	
December	11,253,953	11,751,952	

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, November 1	451,188.86
Runs from wells	474,903.42
Regular deliveries	304,925.72
Other deliveries	260,021.90

The amount of Illinois oil run by the Tide Water Pipe Co. in October was 23,220.70 bbls. Deliveries were 20,909.22 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931—	Runs	Deliveries
October	498,124.13	325,834.95
1930—		
January	543,387.95	493,293.93
February	548,416.33	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	375,742.42
September	457,001.11	371,691.62
October	478,442.12	320,688.72
November	422,794.68	355,402.12
December	556,418.78	363,719.55
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13
July	520,009.38	289,219.05
August	476,623.56	393,231.06
September	492,183.83	323,012.50

Tide Water Pipe Co., Ltd., also delivered in October, 119,981.53 bbls. Oklahoma oil.

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,225	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	21,129	235,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	165,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903
August	32,613	16,581	91,742	32,387	25,741	188,064	4,161	2,516	.....	3,162	9,839	197,903
September	27,067	7,267	106,867	20,099	22,967	184,267	4,833	8,333	.....	.....	13,166	197,433
October	53,710	14,484	100,774	36,742	40,645	236,355	6,097	6,871	2,097	1,838	16,903	253,258

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
November	8,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,383	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903
August	3,462	.....	16,419	7,419	4,290	31,589	.....	.....	.....	.....	968	32,548
September	4,267	3,667	12,933	4,699	7,367	32,933	.....	.....	.....	.....	4,000	36,933
October	3,355	1,129	19,290	16,709	9,323	48,806	.....	.....	.....	.....	3,323	52,129

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
1930—										
October:	Month	18,244,053	16,632,523	23,826,552	3,517,913	1,636,552	2,142,885	3,235,550	3,627,000	72,707,029
	Daily average	588,518	536,533	768,147	113,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,169,459	14,941,770	22,035,222	3,459,320	1,557,870	2,126,948	3,057,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,723	15,057,102	21,810,359	3,432,661	1,590,961	2,157,534	3,118,663	3,228,000	68,281,993
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,733	14,850,953	20,019,313	3,432,475	1,574,955	2,135,037	2,966,142	3,374,000	64,838,613
	Daily average	531,798	479,063	645,781	110,725	50,805	68,872	95,682	108,839	2,091,565
February:	Month	14,930,933	13,531,980	18,957,571	3,341,016	1,402,493	1,951,616	2,747,024	3,139,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,364,843	16,627,687	22,465,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,602
	Daily average	527,898	536,377	724,810	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	16,315,990	20,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,272,000	72,384,239
	Daily average	536,785	553,355	694,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,445,980	17,383,867	23,706,654	3,341,366	1,446,274	2,322,568	3,098,419	3,190,000	75,806,128
	Daily average	530,612	560,157	764,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,878,300	23,139,833	3,175,440	1,344,450	1,850,511	2,936,200	3,166,000	73,982,979
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,060
July:	Month	16,093,322	16,467,789	23,827,213	3,090,762	1,287,430	1,715,730	2,905,909	3,341,000	78,729,155
	Daily average	519,139	531,219	1,091,200	99,702	41,530	55,345	92,739	107,774	2,539,650
August:	Month	15,668,984	9,678,510	32,279,816	3,148,887	1,165,445	1,584,444	2,807,143	3,167,000	69,500,229
	Daily average	505,451	312,210	1,041,284	101,577	37,595	51,111	90,553	102,161	2,241,943
September:	Month	15,180,610	7,930,830	28,981,525	3,151,770	1,138,380	1,641,384	2,761,230	3,632,000	64,417,729
	Daily average	506,020	264,361	966,051	105,059	37,946	54,713	92,041	121,067	2,147,257
Total 12 months		196,758,605	176,547,202	308,727,324	39,926,098	17,026,264	23,648,254	35,373,285	39,823,000	837,830,032